The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOLUME LI CHICAGO, ILLINOIS, JULY 25, 1908. NUMBER 4

Original Articles

AN ANALYSIS OF FOUR HUNDRED CASES OF EPIDEMIC MENINGITIS TREATED WITH THE ANTIMENINGITIS SERUM.*

SIMON FLEXNER, M.D., AND JAMES W. JOBLING, M.D.
NEW YORK.

We have already reported concerning the effects of the employment of an antimeningitis serum, prepared in the horse by inoculation of *Diplococcus intracellularis* and its products, on the course and termination of a small number of cases of epidemic meningitis.[1] The results first presented were, on the whole, so satisfactory that we believed the employment of the serum on a wider scale not only justified but clearly called for, and we are now in position to present a second series of figures which are based on an analysis of about four hundred cases of epidemic meningitis in which the serum has been used.

The cases of meningitis on which this analysis rests have arisen in different and widely separated parts of the United States and Canada and in Great Britain. They have occurred sometimes as small epidemics, as in Castalia and Akron, Ohio, in Porterville, California, and possibly in other places in the United States, and in Belfast, Ireland, and Edinburgh, Scotland; and sometimes as sporadic outbreaks of considerable extent, as in Cleveland, Boston, Baltimore, Cincinnati and Philadelphia. Moreover, it is now evident that so-called epidemic meningitis is widely prevalent throughout the United States, and it would appear to be questionable whether or not any parts are really free from the disease. In view of the fact that we have demanded that the bacteriologic diagnosis be made in every case of meningitis for which we have supplied the serum, and which we have accepted for analysis, and that in doubtful instances we have ourselves examined slides and sometimes cultures prepared from the spinal exudates, we can speak with positiveness on this important subject.

It is an important matter, and one to be carefully pondered, whether the wide distribution of sporadic epidemic meningitis in the United States is the outcome and residue of the epidemic that raged in New York and vicinity from 1905 to 1907, or whether the disease tends to exist and has long existed in a sporadic state in this country, from which the severe epidemic outbreaks have occasionally taken their origin. There is some reason to suppose that the diagnosis of sporadically occurring cases of the disease may fail to be made unless attention is specially directed to the unusual symptoms by the simultaneous occurrence of several such cases, or by a wider publicity which the disease sometimes attains as through the existence of obvious epidemic foci, or, as in the present instance, by the interest excited by the publications relating to the antimeningitis serum.

The analysis which is to be presented is based on histories of cases of epidemic meningitis in which the diagnosis has been established by bacteriologic examinations as well as by the usual clinical tests. The histories have been supplied by physicians in hospitals and in private practice, who have employed the serum. It will not be possible in this place to acknowledge duly and by name the physicians who so generously gave their time to the study of the effects of the serum. But we hope soon to publish a full report of this investigation, when the awarding of due credit will be attempted.[2]

In making up the figures on which the tabulations are based, account has been taken of the age of each patient, the period of the disease at which the serum was first injected, the number of injections of the serum made, the dosage of the serum, the effects on the temperature and the subjective and objective symptoms of the disease, on the number and viability of the diplococcus in the spinal exudate, the general leucocytosis, the duration of the fever and other symptoms, the manner of recovery—that is, whether by slow improvement or lysis or by abrupt termination of the symptoms or crisis—and some other details of the disease. Not all the points that have been developed can be brought out in this shorter article. But we wish to state that in one way only has any selection of cases been made, namely, that all cases which survived the first dose of serum less than twenty-four hours have been excluded from the tabulations. We consider that it may be accepted as probable that any marked benefit which the serum may be assumed to exert could hardly be effectively exhibited before the first twenty-four-hour period following its administration had elapsed. It has chanced that of the histories here analyzed the eliminations include chiefly patients who were moribund at the time of their admission to hospitals and the first serum injections and who survived only a few hours—from one hour to five or six hours—and, in addition, a certain, although small number of rapidly fatal fulminating cases.

RESULT ACCORDING TO THE AGES OF THE PATIENTS.

The total number of cases subjected to tabulation is 393.[3] The total number of recoveries among these cases was 295 and the total number of deaths 98. Hence

* From the Rockefeller Institute for Medical Research.

1. Jour. Exper. Med., 1908, No. 1. Independent publications have been made by Robb, Brit. Med. Jour., Feb. 15, 1908; by Dunn, Boston Med. and Surg. Jour., March 19, 1908; and by Chase and Hunt, Arch. Int. Med., April, 1908.

2. Jour. Exper. Med., 1908, No. 5.

3. Representing the number after the moribund and fulminant cases have been subtracted.

there were 75 per cent. of recoveries and 25 per cent. of deaths. Tabulated according to the ages of the patients the following is the result obtained:

Patients.	Total number.	Recovered.	Died.	Percent. of deaths.
Under 1 year	22	11	11	50
Between 1 and 2 years	19	11	8	42.1
Between 2 and 5 years	68	52	16	23.5
Between 5 and 10 years	79	70	9	11.4
Between 10 and 20 years	105	80	25	23.8
Over 20 years	87	64	23	26.4
Age not given	13	7	6	46.1

The youngest child which recovered was 1 month old. The latest case of the disease, in a child under 1 year of age, which was treated was in its fourth month when the injections were begun; the child died. The highest mortality was among patients over 20 years of age, which we think can be explained in part by the fact that a large number were treated by scattered physicians who had no experience with the serum. If this is not the reason, and adults past 20 are less subject to the action of the serum than younger persons, the fact will of course come out finally; but with one exception — Cincinnati — wherever a series of patients of these ages has been treated by one observer the percentage of recoveries to deaths has been high — Johns Hopkins Hospital (Baltimore), Cleveland, Belfast (Ireland).

RESULTS ACCORDING TO THE PERIOD OF INJECTION.

We have also analyzed the histories according to the earliest period of the disease at which the injection of the serum was begun. Not all the histories are perfectly definite on this point, and hence we have used in the analysis only those that are definite. In not a few cases the onset of the disease was insidious and the prodromata appear to have been indefinite and more or less overlooked. At other times, and this seems to have been the more frequent experience, the onset was abrupt so that no special doubt surrounded the beginning of the disease. Under the circumstances, therefore, the danger is that the period elapsing between the onset of the symptoms of the disease, their recognition and the first serum injection will be calculated too short rather than too long. It is very rare, except in the fulminant cases, that one can assure himself that he is dealing with the disease on the first day of its existence.

The histories of 328 cases were sufficiently explicit to enable us to approximate the periods in which the first serum injection was made. We have arbitrarily chosen the three periods that follow in which to group the cases:

Period of injection of serum.	Number of patients.	Recovered.	Died.	Percent. of deaths.
First to third day	121	103	18	14.9
Fourth to seventh day	100	78	22	22
Later than seventh day	107	68	39	36.4

In spite of the uncertainties surrounding the period of onset of the symptoms which affect the accuracy of the calculation of the period, the beneficial influence of early injection is rendered sufficiently obvious by the table. The period embraced in the last group is, of course, highly irregular, since not a few patients came under treatment when they were in a semi-chronic or chronic state after many weeks of illness. On the whole, therefore, the outlook even for the latter class of cases is not wholly discouraging, and, indeed, we are of the opinion that so long as the diplococcus is still present in the meningeal exudate and the mechanical damage to the anatomic structure is not irreparable, the employment of the serum holds out hope of considerable benefit.

MANNER OF TERMINATION OF THE SYMPTOMS.

The histories have been sufficiently explicit in 270 instances to enable us to determine the manner in which the disease terminated, that is, whether by lysis or crisis. We do not think that our decisions on this point have been uniformly correct and the figures are given, therefore, merely as an approximation of what may be found later to be the true data. Of the 270 cases described in the histories, 201 terminated by lysis and 69 by crisis. Hence we have assumed that from 25 to 30 per cent. of the cases treated with the serum terminated abruptly in the manner to which we previously applied the term "crisis."

Closely connected with the question of the manner of termination of the symptoms is the question of the duration of the active symptoms of the disease in serum-treated as compared with non-serum-treated cases. Without entering into a discussion of this point we wish to state that we have analyzed 220 histories of recovered patients with reference to the duration of the active symptoms and found the period to be about eleven days.

INFLUENCE ON DIPLOCOCCI, SPINAL EXUDATE AND LEUCOCYTOSIS.

In our first publication on the serum treatment of epidemic meningitis we drew attention to a fact which impressed us as remarkable and significant, namely, that soon after the serum injections were begun the diplococci tended to be greatly reduced in numbers, to disappear from the fluid part of the exudate, to become wholly intracellular (unless they were now entirely absent), to present certain changes in appearance, as swelling and fragmentation, and to stain diffusely and indistinctly, and coincidentally to lose viability in cultures. The later and far wider experience has tended to confirm the views we first expressed based on the effects observed; and, while exceptions occur in which the diplococci disappear or become engulfed and change in morphology or lose viability more slowly, yet the general fact seems securely established. There seems little doubt that part of the beneficial effect of the serum injections must arise from the restriction of multiplication and from the greater phagocytosis of the diplococci.

Attention was previously directed to the rapidity with which the exudate in the meninges loses turbidity under the influence of the serum injections. This fact has been noted again and again in the subsequent cases in which the treatment was carried out. Indeed, it would now appear as if the fear we expressed that the cases with strictly purulent exudates might be less amenable to the action of the serum was premature. A fair number of patients in whom the notes state the spinal exudate to have been purulent have recovered, and the rapid clearing of the exudate was observed even in them. Whether there is complete anatomic restitution of the meninges in these cases can only be determined by postmortem examinations, but that complete functional restoration can take place may be regarded as certain.

Closely connected with the rapidity with which the cerebrospinal exudate loses pus cells and returns to a limpid condition is the state of the general leucocytes of the blood. If the inflammatory emigration into the meninges is arrested, then the number of circulating leucocytes should tend rapidly to return to the normal.

The facts at hand, based on many counts of the circulating leucocytes before the injections of serum were begun, and afterward at regular intervals, show, as was to be expected, a fall, often very rapid and even critical, in the number of leucocytes in the general blood stream with which the disappearance of the diplococci and the clearing of the spinal exudate are correlated.

The obverse of the phenomena here mentioned is encountered in those cases not responding to the serum, or responding imperfectly, in which death is the result. Although the data bearing on this topic at our command are less numerous and perfect than the other, yet the general statement can be made that the diplococci, the spinal exudate and the circulating leucocytes are less influenced in the resistant cases, and that progressive increase in turbidity of the exudate and rise in leucocytosis, and greater persistence of the diplococci with retention of viability after several injections of the serum, are unfavorable indications.

The data at hand bearing on the meningeal phenomena that precede and attend the relapses so far as diplococci, exudate and leucocytosis go are also imperfect. Here, again, the general statement can be made that the relapse is attended or ushered in by increased exudation of leucocytes into the meninges, higher systemic leucocytosis, and reappearance of or increase in the numbers of diplococci, although the diplococci may not regain power to grow outside the body in cultures. Relapses in the course of the treatment are not very frequent and rarely has the case terminated fatally during relapse when the treatment with the serum has been resumed without delay and vigorously pushed.

There remains one more topic to be mentioned. The indications given by the first series of serum-treated cases were to the effect that in the great majority of instances recovery from the disease would be complete. The facts brought out by the far larger series of cases on which this article is based confirm the earlier view which we expressed. The number of complications which arose in them was small, and the only persistent defect noted was deafness. This lamentable condition occurred in a few instances only, and it was more often than not noted early in the disease before the serum injections were begun.

INJURIES OF CRANIAL NERVES FROM FRACTURES OF THE SKULL.*

JOHN JENKS THOMAS, A.M., M.D.

Assistant Professor Neurology, Tufts College Medical School; Physician for Diseases of the Nervous System, Boston City Hospital; Assistant Neurologist, Children's Hospital; Consulting Neurologist Quincy Hospital.

BOSTON.

At most large metropolitan hospitals which lie near the manufacturing and business districts there are treated many cases of accidents. In the Boston City Hospital, with which I have been connected as one of the staff for diseases of the nervous system for nearly fifteen years, many cases of injuries of various kinds are treated each year. Over 700 patients of this class were admitted to the wards during the year ending Feb. 1, 1908, in addition to those treated at the Relief Station, a branch hospital, and as out-patients at the Relief Station and the main hospital.

In many of the cases of injuries of the head the neurologic staff is called in consultation by the surgeon in determining the question of the nature and extent of the injury to the brain. In these cases I have been struck by the frequency of involvement of one or more of the cranial nerves when there has been a fracture of the base of the skull. This injury often enables one, in cases that are doubtful or in fracture of the vault, to make the decision that there is a fracture of the base. In looking over the neurologic and surgical literature I have found relatively little on this aspect of the subject, and it seemed worth while to call attention again to what is a well-known fact and to state my own experience in regard to the frequency and character of these injuries.

FREQUENCY OF COMPLICATION.

In the text-books on surgery these facts are usually mentioned, but I have failed to find any statement as to the frequency of the complication. This is probably due to the inherent difficulty in collecting reliable statistics about the subject. In conversation with Dr. Nichols, one of the surgeons of the Boston City Hospital, he has expressed the opinion that one case in seven of fracture of the base of the skull shows an involvement of the cranial nerves, and this estimate corresponds very closely with my results. Let me state at once that no one knows better than I the unreliable character of statistics drawn from records in which the point investigated has not been in mind at the time the records were made. This is especially true of hospital records, in which the house surgeon, in the multiplicity of detail in caring for large numbers of serious cases, often neglects to have notes made by his junior—who is responsible for the records—even of conditions which he himself has noted, and this, too, aside from the fact that in many of the more serious cases the examination necessarily must be incomplete, to say nothing of difficulties with unconscious patients in detecting involvement of nerves of sensation, or those subserving movements of the eyes. Still, while admitting these difficulties and sources of error, the figures I have obtained are striking.

I have taken from the surgical records of the Boston City Hospital only the cases of injury of the head in which a diagnosis of fracture of the base of the skull was made, or in which bleeding from the orifices of the head, ecchymoses of the conjunctiva, or the escape of cerebrospinal fluid from the ear or nose has made the diagnosis certain. Up to Jan. 1, 1908, I found 541 such cases had been admitted to the wards. Of these cases there were 69 in which the records showed peripheral involvement of one or more cranial nerves; that is, 1 in 7.8 cases, or a percentage of 12.75.

FREQUENCY OF INVOLVEMENT.

When we consider the frequency with which the various nerves are injured, either alone or in combination with others, we find the seventh, or facial nerve, by far the one most frequently involved. This, however, is very likely not only because it is actually more frequently injured, but also probably in part because affections of this nerve are more striking and can be more easily discovered in unconscious or partially conscious persons. I have found the facial nerve affected alone or in combination with other nerves in 44 cases, in 2 of which the trouble was bilateral.

---

*Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908

The nerve which is next in frequency of involvement is the sixth, or abducens, which was paralyzed in 12 cases, once bilaterally. The auditory, or eighth, nerve was affected 10 times, and of these cases 4 were bilateral. It is possible that this nerve was partially affected in more cases, but I have excluded all cases in which the deafness was moderate, and in which there had been rupture of the membranum tympani, or where it could have been due to the injury of the middle ear. It was, of course, impossible to differentiate between the cases of deafness due to injury of the nerve trunk and those from fracture through the cochlea. Dr. Bullard,[1] in 70 cases of fracture of the skull investigated, found deafness in 9 cases, in 2 of which it was slight, and in 1 was diminishing and in 1 bilateral. The fracture was at the base or showed in the bony wall of the ear in 6, was at the occiput in 2, and in the frontal region in 1, while tinnitus was found only twice and in both cases without deafness.

The third nerve was next in frequency of affection in our series, namely 9 times. Most often all branches were affected, but at times the trouble was only partial, as in 1 case in which the movements of the eye up and down were impaired. In another there was ptosis only, while in a third the superior rectus was the only muscle supplied by this nerve that was affected.

The optic nerve was the one next most often involved. This occurred in 8 cases, and here I have included only the cases of blindness in which the diagnosis was confirmed by the discovery of optic neuritis or optic atrophy on ophthalmoscopic examination. Of the remaining nerves the olfactory, patheticus, trigeminal and hypoglossal were each affected once.

FREQUENCY OF COMBINED INVOLVEMENT.

The combinations of nerves injured were not very frequent in this series. Once the second, seventh and eighth were affected together. Both eighth nerves twice. Both seventh nerves once, and both seventh and the left sixth once. Both olfactory nerves, with the left fourth and partial left third was another combination. The second, third and sixth on one side were involved together once. The third and seventh twice, once on the same side. The third and sixth occurred together once. The right optic nerve and both sixth nerves were affected once. The optic and auditory twice, once on the same side and once crossed. The seventh and eighth together appear twice. The seventh and sixth twice, and the seventh and twelfth once. In eight cases nerves on both sides of the skull were affected.

I will give in condensed form some of the histories of these cases in which it was possible to observe the patients for some time after discharge from the hospital. It should be noted, however, that in a number of the cases included in these statistics the affection of the nerve disappeared while the patient was still under observation in the hospital for the original injury. This was particularly noted in three cases in the hospital records, two being of the facial nerve and the other of the abducens. In other cases it was noted in the records that the paralysis was improving. In these histories the numbers in parentheses are those of the records of the neurologic department, and I wish to express here my thanks to my colleagues, Drs. Prince, Knapp and Bullard, for permission to use their notes.

1. Permanent or Later Results of Fracture of the Skull, Boston Med. and Surg. Jour., 1897, cxxxvi, 404.

ILLUSTRATIVE CASES.

CASE 1.—*History.*—John S. (13288), was seen first at the Out-patient Department on June 21, 1907. Four weeks before he had been struck in the left eye by the point of an umbrella, at the junction of the eye and nose, and was unconscious for half an hour, and dazed for two or three days.

Examination.—On examination there was slight divergent strabismus of the left eye, due to partial paresis of the third nerve, and also primary optic neuritis in the left, according to the report of the ophthalmic surgeon, and the left pupil did not react to light. Further examination showed paresis of the right extremities with ankle clonus but no Babinski's sign, and slight diminution of the sense of touch on the right side of the body. The palate, face and tongue were unaffected.

CASE 2.—*History.*—(This case is from my private records.) Grace T., aged 5, was first seen by me on April 8, 1903. Four weeks before she fell down stairs striking the head, though there was no open wound. She was unconscious, and remained so for five days, and it was nine days before she spoke. There was no bleeding from the ears or nose, but swelling and ecchymosis of the right eye. There was vomiting at the time of the injury. She remained in the hospital under the care of Dr. Conant, who referred her to me, for two weeks, and then returned home. During her stay at home, she had only complained of headache once, but she had been unable to open the right eye.

Examination.—On examination there was a slight depression of the skull in the neighborhoood of the right occipitoparietal suture. The vision seemed fair in both eyes. There was complete paralysis of the right third nerve with ptosis, and dilatation of the pupil, and probably also paralysis of the superior oblique muscle. The fifth, sixth, seventh and eighth nerves were normal, as well as the extremities. The paralysis of the third nerve improved, so that by July the ptosis had almost disappeared, and the eye could be turned in nearly to the full extent, and somewhat up and down, her vision had failed in the right eye, so that she could not make out the form of quite large objects, and the disc showed beginning atrophy. The fourth nerve seemed to have recovered, as the eye could be turned down and out very well. The vision improved slightly from counting fingers only till when last seen on Jan. 18, 1908, it was 1/200, while in the left eye it was 10/10. The pupil was moderately dilated on the right, and there was partial ptosis on this side and the eye was not moved up, and in, with quite normal range.

CASE 3.—*History.*—E. I. (10969), was admitted to the Boston City Hospital, Oct. 24, 1903. He had been struck by a piece of a bursting emery wheel, and showed a lacerated wound of the bridge of the nose, extending towards the left into the forehead, into which a finger could be inserted three-quarters of an inch, and splintered bone felt. The lid of the left eye was ecchymosed. No paralyses were noted. Fragments were removed from the frontal bone, as well as a large part of the ethmoid, and the inner third of the roof of the orbit. He vomited blood and was unconscious. He was discharged from the hospital on Nov. 10, 1903, and for three weeks after this had severe headaches, but when seen in the out-patient department on Jan. 11, 1904, this had been gone for two weeks, and he was complaining of diplopia and loss of sense of smell.

Examination.—This showed the right pupil larger than the left, though both reacted well. There was paresis of the left superior rectus, and left superior oblique muscles only, with diplopia on looking up and in, and down and in, with the characteristic inclination of the images. The hearing, facial movements, sensation, and the condition of the extremities were normal.

CASE 4.—*History.*—Edward B. (13866), on Oct. 6, 1907, had his head crushed between two cars. When he entered the hospital the same day he was conscious and rational, and showed a horizontal scalp wound, seven inches long, over the right ear, which exposed the bone. There were loose fragments of bone in the wound, and much laceration of the brain, with moderate external and internal bleeding. A crack extended forward from the anterior end of the wound. Both

eyes were ecchymosed. On October 18 it was first noted that there was paralysis of the left superior rectus, and a paresis of the external rectus of that eye, while the fundi were normal. On March 25, 1908, when he was again seen after discharge from the hospital, at the end of nine weeks stay, he complained of some pain and vomiting till about six weeks before, disturbed sleep, attacks of vertigo, and tinnitus and diplopia.

Examination.—The sense of smell was not affected. Sensation was diminished over the area supplied by the first and second branches of the fifth nerve, there was paresis of the left levator palpebrarum superioris, and of the left external rectus. The examination was otherwise negative. He improved while under observation, but was not entirely well when last seen.

CASE 5.—*History.*—James B. (9654), entered the hospital March 23, 1899, having been injured while oiling the engine on a boat. He was conscious, but suffering from shock, and bleeding from the nose and both ears, and on examination it was found that the left eye could not be moved out, nor the eyelids closed, and he was somewhat deaf. There was a lacerated wound in the left temporo-occipital region, 5 inches long, with the bone exposed, but no fracture seen. He vomited several times, the vomitus containing blood. The next day it was noticed that both sides of the face had become paralyzed.

Examination.—Examination at the out-patient department on May 17, 1899, showed that the eyes and pupils were normal except for paralysis of the left external rectus, and slight nystagmus on the right on looking in. The watch was heard on the right side on contact only. Tuning fork air conduction better than bone, and about alike in the two ears. In the right ear there was a cicatrix in the anterior superior quadrant of the drum membrane, with some thickening and retraction. In the left ear there was deformity of the canal posteriorly in the region of the facial nerve, and the membrane was ruptured posteriorly. The aural surgeon reported that there was enough change in the middle ear to account for the condition of the hearing, and he thought the left facial nerve was injured in the canal, while on the right there was no evidence of this. There was some improvement and in November, 1905, it was noted that by a great effort he could wrinkle the brows a little, and could close both eyes completely though with very little force. The muscles of the lower part of the face on the right had very little voluntary motion, while on the left they moved fairly well. There was considerable fine spasm of the facial muscles after voluntary motion.

Both sides reacted to faradism, and galvanism without polar change, but with diminished irritability to both currents, this being slightly more marked on the right than the left side. There was still internal strabismus of the left eye with diplopia.

CASE 6.—*History.*—Albert L., (vol. 447, p. 214), entered the Boston City Hospital July 24, 1905, having been struck on the head by a falling timber. He was partially conscious, bleeding from ears, nose and mouth, and there was a hematoma on both sides in the frontal region, and above the left ear. There was no paralysis at that time, either of the face or elsewhere. Three days later a paralysis of the left side of the face, involving all three branches, appeared, and the next day this appeared on the right side also, and did not improve up to the time of his discharge from the hospital, when he was lost from observation, although he was told to report.

CASE 7.—*History.*—Joseph H., (12368), entered the Boston City Hospital, Feb. 1, 1906, having fallen from the seat of his cart. He was conscious but irrational. There were ecchymoses about both eyes, bleeding from both nares, and the right ear, and a lacerated wound 1½ inches long in the right parietal region, with no depression, and the bone not exposed. There was no paralysis till the eighth day when a slight right facial paralysis was seen.

Examination.—He was examined on February 19 at the out-patient department. There were then slight exophthalmos and slight greenish ecchymosis under each eye. The pupils were equal and reacted, though a little sluggishly. Smell, taste, hearing, sensation and the eye movements were all normal. There was paralysis of the right side of the face, though the eyelid could be closed completely, with diminished reaction of the muscles to the faradic current, and some polar change to galvanism in both facial nerves. The aural surgeon reported that there was probably fracture of the superior meatal wall with effusion in the middle ear, while the auditory nerve was not markedly affected. He thought the facial nerve probably affected by a fracture through the foramen at its entrance into the attic. On March 26 he could move the two sides of the face nearly equally well, but there was still slight quantitative diminution on the right to electric stimulation by both faradic and galvanic currents.

CASE 8.—*History.*—John B. (12937), entered the hospital Jan. 13, 1907, having been knocked down and robbed. He was unconscious and had a hematoma on the right behind the mastoid, and there was blood in the right ear, and the nose, and also a discharge of cerebrospinal fluid from the ear. The left pupil was larger than the right, and there was a facial paralysis on the right.

Examination.—He was examined Feb. 13, 1907, and there was paralysis of the right side of the face, all branches being involved. The pupils and eye muscles were normal except for nystagmus on looking laterally. The watch was heard on the right at 4 inches and on the left at 20 inches. Fork (512) was heard on the right at 8 inches and on the left at 18 inches; air conduction better than that by bone in both ears. Weber, positive on right. The facial muscles on the right showed no reaction to faradism, and to galvanism the reaction of degeneration with slow contraction and CaCC greater than AnCC. The aural surgeon reported a fracture of the glenoid fossa into both external canals, also probably a fracture of the posterior wall of the external canal into the mastoid process, as well as a probable fissure of the Fallopian canal on to the seventh nerve. When last seen, March 27, there was a response to strong faradism in the muscles, but not on stimulation of the nerve, while to galvanism there was still a marked reaction of degeneration.

CASE 9.—*History*—David G. (12993), was admitted to the Boston City Hospital March 7, 1907, with a lacerated wound 1½ inches long over the left eyebrow, bleeding from the left ear, where the drum was ruptured, but no note was made of any paralysis at that time. He had been struck on the head by a falling bale of cotton, and was dazed, but not unconscious. For twenty-four hours he had intense headache, and occasionally afterwards. On March 13, 1907, when he was seen in the out-patient department, one week after his discharge from the hospital, he complained of vertigo with a tendency to fall to the left. There was no nausea or vomiting, but on lying down there was a constant noise in the left ear, but not in the right, and pain in the left ear if he lay on that side of the head. He had also noticed deafness in the left ear and inability to close the left eye, while the mouth drew to the right.

Examination.—There was a facial paralysis on the left, complete in all the branches, while the left side of the face seemed slightly less sensitive to touch, pain and temperature stimuli, but there was no affection of the motor portion of the fifth nerve. The pupils were normal, and the vision equal in the two eyes. There was no diplopia, but a slight slow nystagmus on lateral movements of the eyes. Smell was normal, and taste was not affected. The watch was not heard on the left. Forks, with high and low pitch were heard on the left, but less plainly than on the right, while air conduction was better than that by bone in both ears. The tuning fork on the vertex was heard better on the right. The left ear showed an absence of the light reflex, and dull membrane with the landmarks obscured. On electrical examination the muscles of the face responded on both sides to faradism, but the left side required a stronger current than the right. To galvanism on the left the muscles showed a slowed contraction and diminished irritability, while CaCC was greater than AnCC. The muscles about the eye and forehead were most affected. The examination was otherwise negative.

THE COURSE OF FISSURES.

Walton[2] has studied the course of fissures of the skull, and Cushing[3] of Baltimore gives an excellent sketch of the present knowledge of these bursting fractures. He quotes Bruns,[4] who in 470 cases of fracture of the skull found it basal in about one-half the cases and the base involved in from 70 to 75 per cent. of fractures of the vault. Cushing shows that in bursting fractures of the skull the cranium is compressed and the fissures tend to run vertically in the direction of the meridians passing through the poles at which the pressure is applied, resembling the direction of the segments of an orange, and illustrated by the method of separation of the parts of the bulb of a urethrometer. As he states it, the fissure takes a direction parallel to the polar diameter and tends to follow one of the meridians of the sphere.

Other things being equal, it would begin in the equatorial zone of one of the meridians and follow the line of least cohesive resistance toward the pole of impact. As the base, however, is weakened by the foramina, no matter in what direction the polar diameter of the impact lies, the portion of the meridian which passes through the base will be the one to give way first, whether it happens to be near the pole or the equator, and most of the fissures cross the basal fossæ anterior, middle or posterior. He also quotes Hilton, who called attention to the fact that portions of the base are strengthened by processes such as the zygoma, and called these buttresses.

Felizet says that fissures pass down between the buttresses of Hilton to the nearest basal fossa, of which the middle is more often affected than the anterior or posterior. Cushing also states that it is a matter of dispute still whether the fissures avoid the foramina or not, and thinks this probably depends on the relative strength of the rim of the foramen and the neighboring bone, so that in cases in which the rim is thick, as at the foramen magnum, the base of the skull is not necessarily weak. He says that the posterior lacerated space, foramen ovale, facial and acoustic foramina are the ones most frequently involved. Later, in speaking of the relative frequency of involvement of the various cranial nerves, he says that the facial is the most often involved, the abducens next, or the third nerve, followed by the olfactory, optic, trigeminal, glossopharyngeal, vagus, spinal accessory and hypoglossal.

In my cases the order of involvement was nearly the same, namely facial, then the abducens and auditory. Cushing does not separate the injuries of the seventh and eighth nerves, which should be done, my cases showing that either nerve may be affected alone, the facial especially frequently without an involvement of hearing, only a deformity of the bony canal of the ear, or a rupture of the drum being present. Next in my cases come the third and then the second nerve, one of the most serious injuries, followed by scattered cases of affection of the olfactory, patheticus, trigeminal and hypoglossal. This series presented no cases in which injury of the glossopharyngeal, vagus or spinal accessory was observed.

COMBINATIONS OF NERVES INJURED.

In regard to combinations of the nerves which are injured Cushing speaks only of groups of the seventh, eighth and sixth; of the fifth and third; and of the ninth, tenth and eleventh. In my series, though the number of combinations is too small to admit of any inference as to the frequency of any particular combination, the most frequent were seventh and eighth; both eighth nerves; both seventh nerves; seventh and sixth; second, seventh and eighth; second, third and sixth; both seventh nerves and one sixth; both first nerves and one third and fourth; the third and seventh nerves, both crossed and on the same side; second and eighth nerves, crossed and unilateral; and the seventh and twelfth nerves. The only inference which I think we are justified in drawing from these facts is that, aside from the combinations in which the nerves lie very close together, so as to be liable to injury by a single fissure, as in the case of the seventh and eighth nerves, and the second, third, fourth and sixth nerves, the frequency of multiple fissures makes the groups, both as to the nerves involved and the side affected, much more irregular than one would expect.

METHOD OF PRODUCTION.

In regard to the method of production of those paralyses of cranial nerves, we probably have to deal with varying conditions. In some cases a meningeal hemorrhage may compress one or more nerves within the skull. In other cases we probably have to deal with the effects of increased intracranial pressure, such has been shown by the studies of Bullard, Cannon, Crile, Cushing and others to occur in cases of trauma to the skull. An anology to this condition is seen in the frequency of affections of the optic nerves and the abducens from simple increase of intracranial pressure such as in cases of hydrocephalus and tumor of the brain.

It is quite possible that the fairly frequeat involvement of the sixth nerve in fracture of the skull, which in most cases recovers, is due to this cause. The other and probably most frequent cause is undoubtedly the injury of the nerve by compression, or in rare cases laceration from the displacement of the walls of the foramen, such as has been seen in the deformities of the walls of the external auditory canal in some of these cases and those reported by others. In cases with no displacement of the bone of the foramen we probably find the more curable cases in which there is a more or less severe reaction of the nerve sheath to the bruising and laceration received at the time of the injury.

PROGNOSIS.

The prognosis for recovery differs very markedly in these cases. In a good many the paralysis had disappeared before the discharge of the patient from the hospital, which usually took place within two or three weeks from the time of admission. In these cases we probably had to deal with simple edema of the sheath of the nerves. In other cases the recovery was very slow, and in many incomplete. This is especially true of the affections of the optic nerve which seem to have all gone on to partial or complete atrophy. These results coincide with our knowledge of the difficulty of repair in the neurones of this nerve, which act in this respect like the central neurones rather than like the peripheral neurones of the other cranial and spinal nerves.

This is possibly true also of the auditory nerve, though the frequency of involvement of the internal

2. Ann. Surgery, 1904, xl, 642.
3. Keen's Surgery, iii, 68.
4. Beiträge z. klin. Chir., 1903, xxxviii, 192.

ear in cases of fracture, and also in the cases of deafness following cerebrospinal meningitis, makes it difficult to make any positive statement in regard to this nerve. The severer cases of injury of nerves which pass through a long canal in the bone, which is more liable to show displacement of bone, as in the case of the facial nerve, are also much more unfavorable, and the same was true in a number of my cases of injury to the third nerve.

TREATMENT.

The treatment, aside from the use of drugs, such as strychnin, for the arrest of atrophy, as in cases of affection of the optic nerve, consists of the use of various forms of electricity and massage as in other forms of peripheral nerve injury, in which this can be used. In severe cases of injury, as of the facial nerve, which do not show decided improvement within a reasonable time, such as six months or a year at most, nerve suture with some other nerve such as the hypoglossal or spinal accessory, provided these nerves have escaped injury, seems to be the most promising method of treatment.

DISCUSSION.

DR. ALBERT E. STERNE, Indianapolis: I have an interesting case of what I deem a fracture of that portion of the base represented by the orbital plate. The patient was a heroine of the disaster in which the town of Fontanet was wiped off the face of Indiana by the explosion of the DuPont powder-mill last September. This young women was a school teacher and the building in which she was teaching was completely wrecked. She had the presence of mind to tell her little charges (before seeking safety herself or thinking of seeking safety, although she was near the door) to get under their benches. They did so, but by that time the roof was practically down on them. The teacher was caught between the top of a bench and the roof. She was found in that position, unconscious, the right side of her face being down on the top of the bench. She was unconscious for several days at the hospital at Terre Haute. At the time the surgeon and the oculist first saw her there was great protrusion of the right eye, a cut over the forehead; the forehead was incised in the line of the brow, as it was supposed that a fracture extended into the frontal sinus. The outer plate of the frontal sinus was removed. The protrusion of the eye lasted several days, but I do not know whether or not the swelling was largely extra-orbital. When I saw the patient, two months after the injury, the vision on the right eye was reduced, there was total paralysis of the third and fourth nerves, but no paralysis of the sixth nerve on the right side. During her five months' treatment vision increased almost to normal, being about 15/20 at the present, and she has only a palsy, of course with double vision after she reaches a certain axis in the upper quadrant. She has very little motion of the superior rectus; she has absolutely good motion of the internal rectus, of the inferior, of the superior oblique and the inferior oblique, the only affected muscle now being the superior rectus. At the time I first saw her I was not sure that there was not a lesion of the nerves themselves in the orbit, but as time went on and distinct recovery of the function of the eye muscles occurred I felt that that was probably not the case. Instead of being protrusive, the eye was sunken in the socket, possibly between an eighth and a quarter of an inch; I concluded that there had been a hemorrhage which had left an adhesion which was holding the bulb back in the orbit. At this time the right eye is almost at a level with the left, and I feel sure that the lesion was one of pressure through hemorrhage with subsequent adhesion rather than a direct lesion and tearing of the third and fourth nerves themselves. In general health the patient has improved so that at the present time she is practically well, although she still has a little diplopia on the upper quadrant.

DR. J. J. THOMAS, Boston: I omitted to speak of the mechanism, which I think varies in different cases. In a good many of the cases in the hospital the patient recovers completely from the paralysis, but usually it is obstinate, and those are the cases in which there is apt to be a bony deformity. Frequently there is hemorrhage into the nerve, and therefore degeneration of axis cylinders, while in other cases the increase of intracranial pressure following a blow may account for the degeneration of certain nerve fibers. In the more severe cases we have to do with bony deformity, and that has been shown in a number of cases in which this deformity was seen, particularly in the auditory canal. Prognosis with regard to lesions of the optic nerve is very poor, as the nerve does not regenerate easily and is usually followed by complete atrophy. The eyeground even immediately after the injury shows a swelling of the optic nerve. In a great many injuries to the optic nerve, whether due to pressure or crushing of the nerve fiber there is incipient neuritis and later we can always see optic atrophy on ophthalmoscopic examination. In the cases in which I have encountered lesion of the second nerve, the diagnosis has been confirmed by ophthalmoscopic examination, which gives important aid in both the later and earlier stages of the trouble.

DENTAL EDUCATION.*

M. L. RHEIN, M.D., D.D.S.
NEW YORK.

Does dentistry in this country retain the international pre-eminence for which it has been so long noted? Many Europeans of to-day are already making claims of superiority over Americans. Admitting that American dentists are still in the vanguard as regards the quality of their professional services, it must be admitted that the contrast which existed twenty-five years ago between the dentistry of Americans and that of their foreign colleagues is fast disappearing. This can be due to two reasons only: the advance of dental education abroad and the lack of the same at home. The controling factor in this world is evolution. Consequently, a stagnation means nothing short of retrogression.

History shows that in no country has there ever been witnessed such a demonstration of inventive genius, especially in the line of everything pertaining to mechanics, as in the United States. This has made this country the world's leader in most of the arts, and by virtue of the same attribute has brought about the international superiority of American surgery and American dentistry.

The surgeon, whether of a general or a special field, comes to a great extent under the same influences which are such potent factors in the success of the dentist. His inventive faculties are brought into constant use in every operative procedure which he undertakes. To insure success, his technic must be constantly varied, not only in his operations, but in the designs for artificial replacement of lost or malposed portions of man.

On this account, it is not so many years ago that the surgeon was considered the inferior of his medical colleague. He was called a "bone-setter," just as dentists of to-day are spoken of as "tooth-carpenters."

If we go back to about 1840 we will find that the general physician with the narrow prejudice of that day looked on the general and dental surgeon with equal superciliousness. The practice of general medicine was so empirical and so replete with error that it was bound to stir a feeling of just resentment against the wise owls in medicine at that time.

---

* Read in the Section on Stomatology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

Here it was that general and dental surgery took divergent paths. The general surgeon never forgot that surgery was an inseparable part of medicine and acted on this theory so consistently that to-day it is universally admitted that, to become a good surgeon, it is necessary first to be a superior physician.

The dental surgeon, incensed at the unjust treatment he was receiving from his medical colleagues, rebelled and founded the science and art of American dentistry. This meant nothing more than the treatment of the teeth without regard to the rest of the body. On account of the benighted state of biology, pathology and chemical physiology at that time, the dentist was well able to hold his own.

The result of this separation between general medicine and dentistry is the American dental college of to-day.

It is idle to make surmises as to what the present condition of dentistry would have been had this secession from the parent body not taken place. Nevertheless, it is difficult at times to refrain from imagining what the results would be were this specialty practiced by men fully equipped in all the rudiments of general medicine and trained at the same time in the practice of a specialty that ranks pre-eminent in importance as a branch of preventive medicine. Under such conditions we should see the leaders in this specialty on equal terms with the most eminent men in medicine.

While many of the old guard may continue to make annual boast of the dentists' superior position, and of their equality with medical men, the younger men of merit refuse more and more to be cajoled by this form of sophistry. They have been too often worsted in the attempt to have their services recognized, not only in hospitals, but also in educational institutions. They have had to listen to the slighting admission of the members of the medical staff that, while the latter recognize the need of a dental staff, they can not trust any but medically educated men. No one can deny that, although to dentists is entrusted the sacred duty of preserving the health of the mouth and more especially of the teeth, whose functions properly performed, contribute more to a healthy old age than do any other known means, dentists as a body, nevertheless, occupy an inferior position before the public.

This statement perhaps elicits a protest. The dentist makes the most of his strongest argument when he draws attention to the gross ignorance of the average medical man on dental matters. It can not be denied that this lack of fundamental dental education has caused many serious errors in diagnosis and treatment. Does this ignorance of the physician, in the light of present-day knowledge about a portion of the body, excuse the lack of education of the dentist of to-day, not merely in the anatomy and physiology, but also in the pathology, of man as a whole?

The breach between general medicine and dentistry has been widened and deepened in the past by ignorance, pique, and most of all by ill-liberality of mind. To such an extent has this prejudice affected some of the distinguished members of our profession that the sight of the degree of M.D. is their signal for "on to the fray!"

Is this for the benefit of mankind, ye high priests who have been ordained for the alleviation of human suffering and the betterment of man? Well may the human body exclaim: How long will my ministers of the portal of life be at war with all the remainder of my servants?

This is no fanciful presentment, but a true indictment of many great minds who have used their best endeavors to keep alive discord and enmity. It requires less courage to make this statement to-day than formerly, because the hands of the mighty have weakened and their numbers are daily diminishing. The light of day is breaking in dental education. How many are there to-day willing to deny that there would be infinite advantage in a thorough medical education which did not sacrifice any dental educational factors now at command?

From all sides of the country comes the one answer: The plan is idealistic, but impracticable. Is the solution of the problem, then, impossible, as so many seem to believe?

It is not my intent in this present paper to enter into detail in regard to the great defects in the dental curriculum of to-day. Every careful investigator can but too readily satisfy himself on this point. Without a clear comprehension of the pathology of the entire body, any study of the pathology of the mouth alone is bound to be faulty. The evil results of this system of education are most apparent in two directions. One is the acceptance, by the mass of dentists, of all kinds of erratic ideas of pathology if the presentation is made in a plausible manner. The proneness of the mass of dentists to accept pathologic absurdities is not amusing, but profoundly distressing. The second bad result of such superficial education is the yearly graduation of a body of dentists more or less properly skilled in dental manipulation and technic, but absolutely devoid of ability to diagnose any complicated difficulty. Even years of experience will bring only to a few of this class a modicum of the knowledge necessary for diagnosis. The highest manipulative skill can never compensate for the continual possibility of doing the wrong thing.

There is but one remedy for this condition of affairs. The dentist of the future must be, first of all, fully grounded in the knowledge of medicine. This has been successfully accomplished in Europe, and it can be done much better here.

The argument that the study of medicine destroys the student's manipulative ability is ridiculous when the magnificent skill of the general surgeon, the ophthalmologist, the gynecologist and the rhinologist is observed.

The main argument brought forward is the impossibility of the student body finding sufficient time to study medicine and dentistry simultaneously. "It would take too many years" is the universal cry. At first glance, this seems plausible and unanswerable; but dentists who maintain that they should be on an equality with the healers of any portion of the body ought to be willing to take at least as much time to become properly qualified as dentists as physicians need in order to master the elements of their profession.

Few medical graduates to-day are audacious enough to enter into practice immediately after graduation. Nearly every one expects to spend at least two years as interne in a hospital, the equivalent of our dental infirmary. It is a recognized fact that without postgraduate work, the medical education of to-day has but little value. If it requires six years to finish a physician's preparatory training, why should it take less time to complete a dentist's? The fact that this length of time is required to finish a physician's education causes no diminution in the number of medical students. On the

contrary, the superior preliminary attainment of the medical matriculant over the dental can be easily demonstrated by personal investigation. In other words, the greater the attainment of the student, the more he is inclined to seek the profession in which he will find men of his own educational rank. Consequently, no better way can be found to attract students of superior merit than to raise the requirements to the highest standard.

The most powerful refutation of the argument based on time is the fact that one-third of the year is literally wasted in every dental school in this country. In the best of our institutions, instruction ceases about June 1 and commences about October 1. Would a young man beginning his life's career in any other calling take a few months' rest every year?

It is misleading to say that the dental student takes four months' respite from his studies. He has no other recourse; it is forced on him. The blame for this great waste of the student's time rests on the American method of dental education. The teacher of dentistry, at the end of eight months of conscientious labor, requires a respite from his arduous duties. He is entitled to his much-needed rest if his work is to be properly resumed the following session.

The root of the evil lies deeper than this. It consists in the fact that there ought to be two men for each position on a faculty where there now is only one. Scarcely a student graduates from a dental college who has not had at least one term during which illness has deprived the class of the instruction of some professor. Frequently, this entire course is lost; at best, some futile attempt is made to gloss over the student's loss.

Every actor of note has his understudy. In every preparatory educational institution skilled substitutes are at their command to fill, at a moment's notice, an hour vacated by a teacher's illness. Hospital services are rendered in the same manner the staff alternating in service so as to give each in turn a needed rest and also to have in this way some one always ready to fill a place vacated by illness. In every field it is becoming more recognized that a position of great responsibility should not be entrusted to one man alone. It is only a question of time when a dual faculty will be introduced into dental colleges. This will end the four-month vacation period and herald the advent of a rational dental education.

It is easy to criticise, to destroy the structure once erected, but there is little excuse for doing so unless something better can be built on the site of the ruins.

The faculty of a dental college should not be at the mercy of one man, for, while he may use his power only for good, there is no assurance that his successor will be equally conscientious. For the same reason, it should be made legally impossible to incorporate any proprietary school. To obtain the best results, the college should be part of a university and under the control of the university's officers.

With the exception of short vacations, not exceeding two weeks at a time, the twelve months could be divided into different semesters, so that the dental student would receive his medical instruction simultaneously with his special teaching in dentistry. Many different plans can be devised for accomplishing this end. The following is presented as a crude outline of what could be attained:

The dental student would take his place with the regular medical student, and would, in addition, devote a certain portion of his time to dental technic. The didactic dental course would be given in the intervals between the medical terms. The dental degree should be granted not less than one year after the M.D. degree has been obtained. The student would be supposed to have passed in all his theoretic branches by the end of his last year in medicine.

The fifth year would now be devoted entirely to the dental infirmary and would enable the theoretically perfect student to test his knowledge and skill by practice. This infirmary course, after all the examinations in theory were passed, would then become the equivalent of the young physician's hospital service.

The degree in dentistry would be granted only after the candidate had demonstrated in the infirmary his ability to put into practice the principles which he had been taught. The scope of dental teaching in this country must in time embrace some plan outlined on the above basis. Only when this advance in the curriculum has been made, will the degree in dentistry attain its real value.

38 East Sixty-first Street.

DISCUSSION.

DR. N. S. HOFF, Ann Arbor: There is no university in this country where continuous instruction is given the year through. The University of Chicago maintains nearly continuous instruction, but the university does not have a dental department, and I doubt very much if it would give a summer term in dentistry if it maintained such a department. Again, I think that there would be considerable difficulty in persuading any university to duplicate its chairs of instruction in the manner advocated by Dr. Rhein. This kind of instruction is so expensive that most university authorities would feel it a useless expenditure of money to duplicate the teaching force. Many believe that there is a tendency to burden dental students with too much general scientific study. The better schools have three very strong courses in chemistry, general inorganic chemistry, organic chemistry and qualitative or analytic chemistry; in histology, two courses, one didactic and the other a laboratory course; the same in bacteriology, physiology and anatomy. These courses are too often given no practical application and students consequently lose interest. I have sometimes thought that students should be first taught technical and clinical dentistry until out of their own experiences they could be made to value the medical sciences for their practical as well as their cultural values. Continuous instruction would, I believe, be valuable, because it would keep the students' minds and hands in training without interruption. I always dread even the Christmas holiday vacations, for after the students return it takes a week or more to get them started again. The summer vacation is long, and sometimes students return at the beginning of the next year with what they had learned the former year more or less out of mind. We can meet this condition partially by making up our curriculum in such a way that the students in successive years, by other courses on similar subjects, get a review of the courses which preceded.

In Dr. Rhein's scheme I can see trouble from conflict in instruction. For instance, there are a few basic principles and fundamental truths in pathology that all pathologists recognize and must teach; but there are also many individual and more or less hypothetical views taught simply out of the instructor's personal experience, which may not always be in harmony with the teachings of another instructor. In our school we have three instructors teaching the subject of pathology directly and incidentally. The oral surgeon can not teach oral surgery without pathology, neither can the professor of therapeutics nor the clinical instructors; and there is still another instructor who gives a laboratory course in histologic pathology. I suggest that pathology be taught essentially as a laboratory and clinical course. Of course, it would be absurd to try to teach any course entirely as a clinical or a labora-

tory subject. Even a technical subject, without some didactic instruction, is defective. A student who is not taught to think out what he is doing, be the work ever so mechanical, is not getting the best out of his mechanical and technical training. You can not always get a student to think by giving him something to whittle or make into a certain form. He simply learns to do things as he is told to do them. Why he does those things is a different proposition, and to teach him why must be the work of a didactic teacher. I do not believe it practicable to divide instruction between several teachers of equal authority. The instruction of one good didactic teacher in connection with a laboratory course, supplemented, of course, by clinical experience, will accomplish more in teaching consecutive and scientific pathology than instruction given by any other method. I advocate such a plan for all subjects.

Dr. E. A. Bogue, New York: Harvard University opposed the four-year course when the plan was brought forward several years ago. The dean of Harvard Dental School took the ground that the courses were longer, and that the preliminary examinations were a great deal more severe than formerly. It seems now that he was right. Many of the medical schools now insist that the education which the student must get preliminary to entering such schools must be of a higher, broader character than ever before.

Dr. F. B. Moorehead, Chicago: I think Dr. Rhein is absolutely right. It is impossible that a man can be a good dentist unless he is educated to see the whole field of dentistry and to view it from every angle, in detail and at the same time as the perfect whole. This requires great mental culture, which Dr. Rhein's scheme comprehends. I approve of the system of a dual faculty in dental schools. I do not think it impracticable, although there are reasons why the problem will not be easily solved. All medical schools have such faculties. It would be a poor medical school that had only one man in the whole institution who could teach surgery, only one man to teach internal medicine. In case of sickness, in the interim the subject would go by default. A man at the head of a department ought to have competent instructors under him to step in and carry on his work successfully. I know of an institution one department of which suffered lamentably through one-half of the year's instruction because the head of the department was sick and there was no one to take his place.

It seems to me that the question of a medical education for dentists ought not to permit of discussion, the answer to it is so obvious. Who shall say that the rhinologist should be a medically trained man, the gynecologist a medically trained man, the orthopedic surgeon a medically trained man, but that the stomatologist need know almost nothing about the body and may confine his work to one little part? It is utterly absurd. Whether the medical training should come first and the dental second, or the dental first and the medical second, it will take some years to decide.

Dr. Eugene S. Talbot, Chicago: Dr. Rhein has shown that we in America are fast losing our prestige as the best practitioners in the world. Mechanics are all right in their place, but the biologic side of our specialty is not advancing as it should. The ignorance displayed in any issue of a dental journal in the articles on pathology by members of our profession and teachers in dental schools is appalling. The announcements of dental meetings, national, state and local, offer clinics as drawing cards similar to side-shows of a circus. Dr. Rhein states the question fairly when he says that without a clear comprehension of pathology of the entire body, any study of the pathology of the mouth alone is bound to be faulty. We know that every pathologic manifestation in the mouth is due to some systemic derangement; hence the necessity of a broad knowledge of general pathology. The length of time for the study of our specialty should be four or five years, and six would be none too long. The college year should be continuous, divided into four semesters of three months each, as it is in some of the best medical schools. In this way, a student can vary his work and at the same time have a short vacation. Dr. Rhein's suggestion could be carried out with little difficulty.

Dr. M. H. Fletcher, Cincinnati: I have no firm belief that Dr. Rhein's ideas will be realized soon. Some of us may not, but many of the men who are advocating this solution of the problem will live to see it. I shall make what effort I can to assist in having such a plan carried out.

Dr. Thomas L. Gilmer, Chicago: I have never had the slightest doubt that a medical education for the dentist was desirable. In time the educational change advocated by Dr. Fletcher may come. Meanwhile let us not indulge in harsh criticisms of the present schools and teachers who are trying the best they can under present conditions to elevate dentistry. In the school with which I am connected we have junior teachers in practically every branch. The junior is not equal to the senior teacher, but we recognize the fact that he must be capable of taking the place of the senior teacher during a temporary absence. No one believes more strongly than I that only such dental schools and medical schools should be tolerated as are connected with universities. I believe a four-year course none too long, but prefer to have a student for three years with a preliminary education sufficient to enable him to comprehend what is to be taught, rather than one for a much longer period without the better preparatory education.

Dr. G. V. I. Brown, Milwaukee: There should be an effort made to bring about greater uniformity between the curricula (I wish we might include them all under the word "curriculum") of the different colleges, and I feel sure that the better class of universities would be only too glad to cooperate to the end that there may be better courses. I believe that the members of this Section should set in motion an effort that may result in an organization with the object of improving the curricula of the different dental schools.

Dr. N. S. Hoff, Ann Arbor, Mich.: A few years ago the representatives of four or six schools agreed to adopt the four-year course the following year; but when the time came all failed but one to do so. Then the Association of College Faculties adopted the four-year course, tried it one year, and then went back to the three-year course. The sentiment for some extension has not died out, for we need a four-year course. Could the university with which I am connected have had the support of the profession, we should never have gone back to the three-year course. It is good to keep up this agitation, for we can not afford to stand still; but we must not censure the colleges too much when we fail to support their efforts to do our will. There is a business aspect with which all colleges have to contend. They must have support in the way of attendance. The best of our schools would not have twenty-five students if it took the advanced stand advocated by Dr. Rhein. Our school has always maintained a high standard of preliminary education, but it has always been to our harm so far as progress in a business way is concerned; and that is the difficulty with which nearly every school has to contend. It will be difficult to convince most schools that it is possible and practical to adopt this plan and expect even moderate business success. It might be possible to induce state universities, which are entirely supported by state funds, to undertake it, because when any one of their boards of regents believes in a four-year course of instruction it will be adopted whether there are ten students or one; but one can not appeal to other schools on this basis, because it means bankruptcy.

Dr. G. V. I. Brown, Milwaukee: A few of the men connected with the universities should get together occasionally, go over this question point by point and adopt such changes as can be adopted. The regent of most any university would, within limits, do whatever the faculty advised him to do, but he would expect the faculty to make good, and if our students fall off and lose interest the plan is a failure and it comes back on us. We must avoid that, for we are not yet prepared to make good. We ought to have a thoroughly outlined, well-arranged curriculum on which we are in accord with the idea that it is the best kind of dental education. If we can convince the dentists and people of this country that whatever course we may finally adopt offers the best education, it does not make any difference whether it requires four or six years to complete it, we can get the students; but until such time we can not.

DR. M. L. RHEIN, New York: We must regulate educational matters on a business basis in order to make education a practical success. If our educational institutions are shown how they can make the degree in dentistry a supplement to a medical degree without losing pupils, I believe that the plan would successfully meet every objection. Every attempt heretofore in that direction, like the adoption of the four-year course, has resulted in such a loss of students as to make it a financial impossibility. There was no stronger advocate of the four-year course than the dental department of the University of Pennsylvania; the members of the faculty adopted it, and were forced to give it up because they did not feel that they could stand the decrease in the number of students. My plan, I believe, overcomes that difficulty. It entails more work for the faculty—that is, more students under the medical staff without a proportionate raise in salaries.

If a university having both a medical and a dental department would advertise to give students a year's course in both departments for the same tuition fee now required for a separate course in medicine or dentistry, it would be a success. The men who are desirable students would jump at the opportunity to secure such a combined education for one fee; and what difference would it make to the medical faculty if the number of students in their class-rooms was twice as great?

In all this it has been farthest from my thought to criticise the efficiency of the men who are teaching dentistry to-day to the best of their ability.

Dr. Hoff speaks of the injury done students by divergence of teaching among the men in the same department. The man who is studying dentistry or medicine, or both, has reached that period of life and is possessed of such educational attainments as to have a logical mind. It is far better that those divergent views, whether in regard to surgery, pathology, the theory and practice of operative dentistry, or prosthesis, should be brought to the attention of that student in his own institution, rather than that he should meet them in after life and feel that his mother institution was defective in her teaching. In my opinion, then, a teacher of pathology ought to tell his class the views which diverge from his, presenting his own views and making due allowance for the reasoning powers of the students. Any student not capable of logical deduction at that age makes a mistake in taking up any branch of the profession of medicine.

There is no place to-day for empirical medicine. Fifty or sixty years ago there was nothing else; scientific medicine did not exist. Many dentists who do not hold the medical degree admit their shortcomings in diagnosis, which is the secret of professional success. When large numbers of men candidly admit that they wish they had been grounded in the practice of medicine, then the sentiment is present and the results are bound to follow sooner or later.

I agree that a large part of the instruction in pathology must be in the laboratory. I claim that the clinical demonstration of pathologic study on the living subject is as important as the laboratory work.

NUTRITIVE AND NEUROTIC DISTURBANCES OF THE HAIR.*

L. DUNCAN BULKLEY, A.M., M.D.

AND

HENRY H. JANEWAY, M.D.

NEW YORK CITY.

The hair, when attached to the body, is a live and more or less active portion of the economy, subject to constant growth from its root. The proof of its live character is found in its turning suddenly gray in its entire length, under certain conditions, and also in the changes found at the extremities in fragilitas crinium and trichorrexis nodosa, as will be mentioned later.

When shortened by cutting, hairs have an indefinite life, but when uncut they tend to fall normally after a certain period, and are replaced by new structures formed from the papillæ and lining cells at the bottom of the follicle. The periodic shedding and reproduction of the hairy coats of certain animals, as well as the slight constant falling of the hairs of the head, eyebrows, etc., illustrate this, while the constant regrowth when hairs are extracted from the face of a female also demonstrates the vital power of the hair follicles under normal conditions.

In health the hair has a very firm hold on the skin, as is shown by the repeated instances on record where the scalp has been torn off when the hair has become entangled in machinery, and yet in certain conditions of disease it may be so affected as to break off or fall out with a touch. It may also lose color or change in color, character, or even shape, often from causes thus far unknown.

Certain diseased changes in the hair have for some time been recognized as due to the action of grosser parasitic micro-organisms, as in ringworm and favus; in other conditions, as in dermatitis seborrheica, the disturbance in the nutrition of the hair is believed to be caused by the presence of smaller organisms, as cocci, and some have claimed a parasitic form of alopecia areata; in others, as in folliculitis decalvans and dermatitis papillaris capillitii, the loss of hair is due to pus organisms. All of these are excluded from the present consideration.

But there is a much larger and very important group of disturbances of the hair which are caused by derangement of nutrition and innervation going on within the follicle, which it is well to consider from a broad point of view. We all know that certain physiologic states of the system are attended with conditions relating to the growth, atrophy, and changes in color of the hair, and we can thus readily understand how pathologic conditions of the economy can induce similar or dissimilar alterations in the hair structure. That we do not yet fully comprehend all the reasons for this, nor the exact methods in which they occur, is no reason for our not seeking to understand the relationship of these affections, or some of the causes which are apparently connected with them.

All of these troubles of the hair are so frequently regarded as purely local affairs and treated, often inefficiently, by external measures alone, that it is worth while to examine whether there may not be constitutional conditions back of them, the rectification of which will aid in accomplishing the results desired.

With this end in view, we will briefly consider the various alterations of the hair belonging to this group, which may be conveniently presented in the following tabular form:

In examining this table, the elements of which are arranged in a somewhat logical order, we find that in many of the affections there is discovered either a natural tendency to the hair disorder in question, or a well-recognized cause, or at least a physical condition which occurs antecedently. But in each form of hair disturbance we have also to recognize that in a certain proportion of cases we can find no adequate cause, and to these we give the designation *idiopathic*. This, of course, is an error, for they are not really idiopathic (ἴδιος, occurring independently), for every event in Nature

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-ninth Annual Session, held in Chicago, June, 1908.

must have a cause, only as yet we have not been able to definitely determine the etiology in many instances. We will now look more closely into the various portions of this table.

NUTRITIVE AND NEUROTIC DISTURBANCES OF THE HAIR.

1. Hirsuties
   - Normal or natural at puberty.
   - Abnormal
     - At the menopause.
     - With ovarian or uterine disorder.
     - In the insane.
     - Idiopathic.
2. Alopecia
   - Congenital
   - Acquired
     - Senile—normal or natural.
     - Premature
       - Symptomatic
         - After fevers.
         - [illegible] syphilis.
         - From eczema, etc.
         - From nerv. shock.
       - Idiopathic
3. Canities
   - Congenital—albinism.
   - Acquired
     - Senile, normal or natural.
     - Premature
       - Sudden—from nervous shock.
       - Gradual
         - Partial
           - Along nerve tr'ks
           - In leucoderma.
         - General
           - From grief.
           - Idiopathic.
4. Fragilitas crinium
   - Symptomatic, after fevers etc.
   - Idiopathic.
5. Trichorrexis nodosa.
6. Alopecia areata.
7. Monilithrix.

I. HIRSUTIES.

The first thing that strikes us in regard to excessive growth of the hair is that, while in infancy and childhood both sexes have no hair on the face, although it grows on the scalp, nevertheless at a later stage of life, which we call puberty, it begins to develop on the face of the male, but only very exceptionally on the face of the female; although at this period it also appears on other parts in both sexes. There are, therefore, conditions of the system which control the production of the hair.

Again, when the sexual functions cease in the female, at the menopause, there is considerable tendency to growth of hair on the face; many observers have also noted the proneness to superfluous hair on the face of females much earlier in life, in connection with sexual disturbances from ovarian or uterine disease. Furthermore, when there is gross disturbance of the nervous system and mental faculties, as in insanity, there is a tendency to growth of hair on the faces of females, as many have testified. All these facts demonstrate that the development of larger hairs from lanugo hairs (which latter are found over almost the entire body surface, except on the palms and soles) depends on causes which may at one time or another come into action in the system.

When we turn to what is commonly known as hirsuties or hypertrichosis on the faces of young women in apparently good health, it must be acknowledged that the problem of causation is sometimes a difficult one; but, in the light of what has preceded, it would seem that there must be a cause, although medical skill and judgment may not in many instances fathom it. May it not be because we have not yet probed sufficiently into the real conditions of life and detected errors in nutrition and innervation which can have an influence in this direction?

In looking over our notes of hirsuties we find records, more or less complete, of 175 cases, and a careful study of these brings out considerable of interest in connection with the possible causation of the condition. In many instances the notes are naturally very brief, as they and all the notes hereafter referred to were made only in the routine of office practice to aid in caring for the individual, and mostly long before any thought was given to the special study of any possible etiologic relationship.

Something can be learned from the ages of the patients which are presented in the following table:

TABLE 1.—HIRSUTIES. FEMALES.

Age in years.	Single.	Married.	Total.
15 to 20	12	..	12
20 to 25	38	2	40
25 to 30	41	6	47
30 to 35	25	10	35
35 to 40	13	7	20
40 to 45	2	3	5
45 to 50	..	2	2
50 to 55	1	2	3
55 to 60	..	3	3
60 to 65	..	..	..
65 to 70	..	2	2
Not stated	3	3	6
Total	135	40	175

We notice that one-half of the cases occurred between the ages of 20 and 30 and were, therefore, not connected with puberty and the normal development of hair elsewhere in females, but at the time of the appearance of hair on the faces of males. We have already noted that it is well recognized that hair grows more readily on the faces of females with uterine and ovarian disease, and at the menopause, and the question arises whether sexual derangements may not play a larger part in the cases ordinarily met with than is commonly supposed.

Examining carefully the notes of the cases, we find that no record whatever as to the menstrual function was made in regard to 61 patients, leaving 114 to analyze. Of these the notes were made (often rather hurriedly) that the menses were regular and normal in 26 cases, or only 22.8 per cent., while in 88, or 77.2 per cent., there were recorded all possible forms and varieties of irregularities in the menstrual functions, in very many instances of a most distressing character. From what we know of the difficulty of obtaining accurate statements from patients (especially when they do not think that such a matter as menstruation would have any bearing on the trouble under consideration) it is more than probable that in a considerable share of the cases in which this function was recorded as normal there would be found a past or present history of sexual disturbances. In a number of the married females it was found that each was either sterile or had had but one child.

It has also been mentioned that in connection with the profound nervous and mental derangement which we call insanity hair was found to grow readily on the faces of females. Now, while there were no instances of this trouble among the cases under consideration, there were recorded disturbances of the nervous system in 31 cases. In several instances it was recorded that the growth of hair appeared after severe nervous prostration, also after profound exhaustion following the nursing or death of relatives, etc. In 27 cases there were also other cutaneous disorders requiring treatment.

It is a little interesting to note the localities affected by the hirsuties. The chin was the seat of the trouble in 119 cases, or 68 per cent. of the whole; in 49 instances it was confined to this location alone. In 74 cases the lip was the seat of the difficulty; in 32 instances here alone, and in 52 variously combined with other portions of the face and neck. The growth was on the cheeks in 39 cases, in 10 of them here alone.

The degree of hirsuties varied greatly in different cases, from a moderate downy condition to a most extensive and disfiguring heavy growth of stiff large hairs, over a greater or less area.

The local causes to which the excessive growth was attributed were also interesting. In quite a number of instances the condition present was ascribed to previous efforts at relief, and the use of the much advertised "Modena" was repeatedly mentioned as increasing the growth greatly. Many had used various depilatories, pumice stone, shaving, etc., all of which had stimulated a previously fine growth into one luxurious and strong. Very many had pulled out the hairs, in some instances for many years.

II. ALOPECIA:

Coming now to the opposite condition, namely, a failure in the proper activity of the hair follicles, leading to the various degrees of baldness, let us see if there are any facts which might lead us to suppose that there may be etiologic factors liable to be overlooked in ordinary cases.

Referring to our classification, we find that alopecia may be congenital or acquired. The former we will not dwell on, except to mention that in some of these cases there are undeveloped hair follicles, which later in life, even in childhood, may develop a more or less abundant crop of hair, when the life processes of the individual are equal to the task. We recognize, therefore, some failure in the nutritive or neurogenic activities of the system, for in these patients other kindred structures, the nails and teeth, often suffer as well: in some of the reported cases, however, a developmental error was at fault, as there was found microscopically an absence of hair follicles.

We next notice that acquired alopecia seems to be a more or less normal or natural accompaniment of advancing years, with its failure in nutrition and nerve energy. We are well aware that the researches of Pincus, Neumann, Michelson and others have shown atrophic changes in the scalp, with alterations of blood vessels, akin to those taking place in other portions of the senile tissues. But this only strengthens the argument that there are forces at work in the system leading to a diminution of nutritive and nerve supply to the hair, whereby its power of continued growth is hindered. The often striking exceptions to the rule of senile baldness only show that in certain instances the agencies which produce the hair have not been impaired.

Premature alopecia, which may occur at any time of life, is known to have a definite causation in certain cases. Thus, after erysipelas and fevers, notably after typhoid, there is often a great shedding of the hair, which regrows more or less quickly and with greater or less vigor, according to the recuperative powers of the system. In syphilis the hair is frequently lost, both in the well-known patchy manner in its early stages and also often later in the disease, both of which conditions yield more or less completely to proper constitutional treatment.

The hair follicle is but an involution of the epithelial covering of the skin, penetrating the corium, at the bottom of which the hair papilla rises from the corium, well supplied with nerves and blood vessels which furnish nutriment to the growing hair. The lowest part of the hair is large, soft and succulent, and it is only in the upper portion of the follicle and in the completed hair, as seen externally, that there is any tensile strength. The newly formed, soft and succulent cells in the deepest portion of the hair follicle are gradually changed in character, as the hair is pushed forward. The component cells, which were originally cylindrical and polyhedral in shape, become altered into spindle-shaped, nucleated cells, almost fibers, until, in the completed hair, they are firmly fused together into a firm, dense structure of considerable strength.

When there has been any agency or condition disturbing the nutrition of the hair, the lower cells fail to undergo the proper transformation just described, and, as they are pushed out by newly formed cells below, the portion of the hair within the follicle separates and the long hair is shed.

In the meantime, however, unless there has been too great a derangement of nutritive or nerve elements, the soft and succulent cells are still being produced around the papilla, and are pushed forward; but if they are yet unable to undergo a normal change into the fibrous structure of the complete hair there will be alopecia of greater or less degree. On close inspection we often find open follicles choked with imperfectly developed hair cells, and it only requires a resumption of the proper functions of the follicles to again produce hairs of proper size and length.

In course of time, however, as seen in the senile scalp, there may come a permanent alteration in the follicles, which then become sealed up, and no hair can possibly grow. In the ordinary falling of the hair, therefore, there is not, as the laity suppose, a complete loss of the hair, but only a shedding of the external portion, as in animals at certain seasons, while the real root from which new hair may grow remains still in the follicle, ready to reproduce healthy hair, if only the nutritive and neurogenic powers are in proper condition.

Applying what has preceded to the cases of ordinary baldness, let us see if any light can be thrown on them by a study of recorded data. In the accompanying table are given the age and sex each of 670 cases as observed in private practice.

TABLE 2.—ALOPECIA.

Age in years.	Males.	Females.	Total.
Under 5	5	3	8
10 to 15	11	1	12
15 to 20	52	29	81
20 to 25	65	63	128
25 to 30	91	68	159
30 to 35	76	38	114
35 to 40	50	19	69
40 to 45	30	16	46
45 to 50	20	4	24
50 to 55	12	1	13
55 to 60	5	5	10
60 and over	..	6	6
Total	417	253	670

It is well recognized that, in this country at least, males are more troubled with alopecia than females, 417 to 253, or 62 to 38 per cent. Later we may find some other causes, but I think that the general impression is correct, that this is in a considerable measure due to the head gear, the hard unyielding hat of the male causing pressure at the periphery of the head and interfering with the proper blood and nerve supply to the hair.

All ages are represented in this table, but most of the cases, over 60 per cent., were seen in patients between the ages of 20 and 35, the largest number being between 25 and 30 years. There are, of course, reasons why special attention should be paid to the matter just at this period of life, but a careful study of the recorded histories shows the existence of causes for the alopecia, which tend to be rather more pronounced at this time of life than in earlier or later years. It is to be regretted that the notes of cases were often rather scanty, but it must be realized that in the ordinary run of practice there is not always time to enter into such a careful study of the patients in all particulars as would be de-

sirable to furnish material for an analysis such as this; but enough has been recorded to show very interesting facts bearing on the causation of alopecia.

All recognize that dermatitis seborrheica is a most fertile cause for the falling of the hair, and in a study of this disease by one of us[1] it was shown to be an important factor in over 63 per cent. of cases of alopecia. But it was also shown that, although it was recognized as due to a micro-organism practically omnipresent, dermatitis seborrheica was constantly dependent on general causes, which lowered the vitality of the tissues and rendered them suitable for the growth of the organism and thus enabled it to interfere with the nutrition of the hair.

It would be quite impossible, as well as unnecessary, to enter into and detail the various debilitating elements which have been observed and recorded in these cases, as antecedents to the loss of hair; but it may be interesting to note a few of them as illustrative of the line of thought and investigation to be pursued.

In 59 cases the trouble had followed typhoid fever, in 35 it had occurred after the exanthemata, and in 28 cases it came on after pregnancy. In 119 patients there had been a history of nervous derangement of varying severity, and in 117 there was general debility from many different causes. Thus, in 22 it followed an attack of grip, in 8 cases after pneumonia, in a number there had been recent Roman fever, appendicitis, peritonitis, malaria, surgical operations, etc., and a considerable number were associated with skin affections manifesting much debility.

The results of a proper tonic treatment, both on the general health and in the growth of hair, showed a not insignificant relation between the two. In 13 cases it was recorded as being syphilitic (although undoubtedly alopecia occurred very many times more frequently in this disease in which it was not noted) and in several instances patients who came solely on account of the loss of hair learned for the first time that they had constitutional syphilis.

In 153 cases no good cause for the alopecia was recorded, and in 22 instances it was ascribed to hereditary influence. In a number it was attributed to local causes, heat, heavy hats, excessive perspiration, etc., and in many the daily use of the shower bath was believed to be an important causative element.

We see, therefore, that careful investigation will often reveal a variety of causes which can readily operate against the life of the hair in a very considerable proportion of cases of alopecia. In regard to other cases in which no adequate cause can be determined, may it not often be from lack of proper attention and study, with discrimination and judgment as to etiologic data, for in the light of science there must be a cause for every effect?

III. CANITIES.

Following the same line of thought, we find that graying of the hair, or canities, is a process in Nature which must have a cause, although this is often most difficult to discover and overcome. In our classification we see that canities may be congenital or acquired, even as are the other conditions of the hair already discussed. We need not dwell on the congenital form, of which we know little; it is observed in albinos, and also occasionally in patches inherited through several generations.

Acquired grayness, as was remarked of alopecia, seems to be a more or less normal or natural accompaniment of advancing years, with its failure in nutrition and nerve energy; and, as in the case of alopecia, the exceptions only prove the rule. Premature canities is seen to embrace several well-recognized conditions, relating largely to nervous causation, and may occur suddenly or gradually.

Sudden blanching of the hair, in a single night, as in the historic instance of Marie Antoinette, and in the case of the sepoys in India, condemned to be blown to pieces from the guns, has been doubted, but so many other instances have been reported by reliable observers that there can be no question but that it may happen after most severe mental strain or shock. No satisfactory explanation of the mode of its occurrence has been made, but it is commonly accepted, from microscopic findings, that the change is effected by the entrance of air between the cells, due to some remarkable action within the hair follicle in response to neurogenic influence.

Gradual graying of the hair can certainly come prematurely from grief or from mental and nervous strain, as every one has observed; and in certain instances the hair has been known to resume its natural color under more favorable conditions of life. Partial graying of the hair is also not infrequent along nerve tracts affected by neuralgia, and on patches of leucoderma on the scalp and elsewhere. The new hairs formed in alopecia areata are also apt to be white, but in time assume a natural color, showing a possibility of change after the hair is formed.

We see, therefore, that, as in other disturbances of the hair, there are nutritive and neurogenic influences which induce a loss of color in a large share of instances. May it not be that in, what is perhaps wrongly called, idiopathic canities, there are disturbances of nutrition and innervation, less active and severe, which induce the change, and which may be discovered and removed by most careful medical skill, thus enabling the hair follicles to resume a normal action, even in regard to the coloration of the hair?

The ages of patients with premature canities are shown in the accompanying table; there were, of course, very many more who were treated for other affections in whom this condition existed, but in regard to whom it was not particularly noted.

TABLE 3.—CANITIES.

Age in years.	Male.	Female.	Total.
15 to 20	..	5	5
20 to 25	2	4	6
25 to 30	1	8	9
30 to 35	..	6	6
35 to 40	..	..	..
40 to 45	..	4	4
Total	3	27	30

The few cases of canities in which the patients have presented themselves for treatment do not throw much light on the subject, although in some instances there were points of considerable interest. In four cases there was a very clear history of nervous causes, and, although there was no instance of a very sudden change in color, it was observed to occur in them very soon after profound nervous strain, and in a considerable number it was associated with much general debility, once after a severe peritonitis. In one patient who came for the treatment of patches of very white hair, altering the appearance sadly, the condition was found to be due to leucoderma. In six of the cases the trouble appeared to be hereditary.

1. Bulkley: Dermatitis Seborrheica and Its Relations to Alopecia, etc., Medical Record, May 13, 1905.

IV. FRAGILITAS CRINIUM.

The next condition of the hair exhibiting nutritive or neurogenic disturbance is one which may often be recognized as symptomatic, coming during and after fevers and debilitating illness. It may also at times appear to be idiopathic, although close investigation can often discover a reasonable cause. It is frequently met with in patients coming under treatment for alopecia, also in many cases of dermatitis seborrheica. It consists in a weakness or fragility of the shaft of the hair, whereby it is easily broken off at any length, or split, either in its course or more commonly at the free end.

While the condition was observed in dozens or scores of instances in connection with other affections, there were relatively few cases recorded as such, the ages of the patients being shown in the next table.

TABLE 4.—FRAGILITAS CRINIUM.

Age in years.	Male.	Female.	Total.
3	..	1	1
8	..	2	2
15 to 20	1	7	8
20 to 25	..	2	2
25 to 30	..	1	1
30 to 35	..	5	5
45 to 50	..	1	1
Total	1	19	20

Little can be learned from these few cases, but the frequent occurrence of fragilitas crinium in connection with alopecia shows the that nutritive and neurogenic conditions which may lead to a premature shedding of the hair are such as may also induce a poorly developed structure, in which the component cells may have little tenacity. The same is true when the nutrition is interfered with by dermatitis seborrheica. But the fact of the splitting of the ends of the hair during and after fevers and great general debility shows that the hair is a live substance, modified by the conditions of nutrition and innervation, possibly in part through faulty action of the sebaceous glands surrounding the hair follicle.

One of our cases was that of a very nervous girl of 17, who since a child had consumed prodigious amounts of tea and coffee, many times daily, and even in the night. The hair over the entire scalp was broken off to an eighth of an inch in length; it had been thick and curly until about 5 years previous to her first visit. In an unmarried woman of 47 the hair on a strip about an inch wide in the front of the scalp broke off at about an inch in length, and, although of full size and apparently normal, remained thus short for some months. In a boy, aged 15, there suddenly appeared on the vertex a patch an inch in diameter, over which area the hairs were broken off to about a quarter of an inch in length. About the same time a little girl, aged 3, was seen who had a similar patch near the vertex. In both these cases the hairs were carefully examined microscopically, and there was certainly no trichophyton present in either.

V. TRICHORREXIS NODOSA.

This curious condition, now well known in dermatology, is closely allied to the former affection, but presents features which make it an independent disease. It is characterized by one or several small, grayish, node-like masses, generally toward the end of the shaft, at which the hair readily bends at a sharp angle, and at which it separates with slight traction, giving two brush-like extremities. Some writers speak of this as a very rare disease, seen usually in males, especially on the hairy face. In our experience it is not so very uncommon on the scalps of females in adult life, as shown in the following table, which by no means represents all the cases which have been casually observed:

TABLE 5.—TRICHORREXIS NODOSA.

Ages in years.	Males.	Females.	Total.
15 to 20	..	5	5
20 to 25	..	4	4
25 to 30	3	4	7
30 to 35	..	5	5
35 to 40	1	5	6
40 to 45	..	2	2
45 to 50	2	1	3
Total	6	26	32

But little is known in regard to the causation of this curious affection, and, while some have claimed it to be parasitic, the findings of different observers do not agree, and careful studies by other competent observers fail to demonstrate the uniform presence of any micro-organism. The rather brief records of these cases do not throw much light on the etiology of the trouble. In 26 cases the scalp was affected in women, and in 6 the bearded face in men. In 2 the mustache alone was affected, and in one instance the disease appeared also on the eyebrows and forearms.

In 14 females there were other affections of the skin, acne 5, alopecia 4, dermatitis seborrheica 2, psoriasis 2, and alopecia areata and severe eczema 1 each. The last mentioned was a most interesting case on account of the combination of diseases. It occurred in a married woman, with no children, aged 30 when first seen, and who, living in a distant city, was under observation off and on for twelve years. The alopecia areata, which ultimately involved about the entire scalp, was very characteristic in its sharply defined spots; it often yielded to treatment, only to recur again and again after very severe repeated nervous strain, accompanying various sicknesses and finally the death of father and mother. In addition to this, she had trichorrexis nodosa, with breaking of the long hairs, and later a most distressing eczema of the genital region. In a number of the other cases there was recorded a history of nervous strain, directly after which the trouble appeared.

From what has preceded in regard to the effect of disturbances of nutrition and innervation on the condition of the hair there is little doubt but that, for some as yet unexplained reason, the fibers of the hair become separated at particular localities, causing the swellings or nodes, and the ready fracture and brush-like ends of the hair follow as a natural sequence. Whether this is due to a sudden accumulation of air in the shaft, as has been suggested, can not now be determined; we recall that the alteration of the hair in canities, which may occur suddenly, is regarded as due to the presence of air. It is more likely that in both instances it is not actually air which is present, but some gaseous substance generated by the cells of the hair under abnormal nutritive or neurotic disturbance.

VI. ALOPECIA AREATA.

Having noted several entirely different alterations in the hair which may occur as a result of nutritive and neurotic disturbances, we are better prepared to understand alopecia areata, which often presents local and constitutional phenomena much resembling those observed in connection with the four last mentioned affections of the hair.

Alopecia areata is not a very common affection, but the bald, smooth, white patches are so striking that statistics probably present its relative frequency correctly, for all patients, rich or poor, seem equally sensitive

about it. Among 15,240 miscellaneous cases of diseases of the skin seen in private practice, it occurred 202 times, forming 1.3 per cent. of the whole; and in an analysis of 10,000 public cases it formed only 0.06 per cent., it being not quite one-half as frequent among this class of patients. This disproportion would seem to point strongly against a parasitic cause, as claimed by some, and in favor of its arising from some disturbance of nutrition or innervation. The constant observation of a spontaneous disappearance of the trouble, even repeatedly, would also militate against a parasite theory, while its occasional appearance or recurrence after each great nerve strain or shock would support the constitutional theory of the nature of the disease. The very great rebelliousness of alopecia areata to local treatment alone, and its yielding to complete and perfect internal measures, even without local aid, would also indicate a constitutional rather than a local etiology.

Space forbids our entering further into the discussion of these matters, or bringing more proof of the nutritive and nervous bases of this affection, which nearly forty years' observation of it, by one of us, has confirmed. We will refer to the records of the private cases previously referred to.

TABLE 6.—ALOPECIA AREATA.

Ages in years.	Male.	Female.	Total.
5 to 10	10	5	15
10 to 15	16	5	21
15 to 20	8	10	18
20 to 25	15	12	27
25 to 30	14	9	23
30 to 35	18	14	32
35 to 40	14	8	22
40 to 45	12	9	21
45 to 50	3	5	8
50 to 55	7	4	11
55 to 60	2	..	2
65	..	1	1
66	..	1	1
Total	119	83	202

Alopecia areata is seen to affect males more frequently than females in the proportion almost of 60 to 40 per cent.

It is observed in almost all ages, though rarely before 5 or after 45 years of age, and in this series of cases it was found most frequently between the ages of 30 and 35. In three cases it had begun before the age of 5 years. In one case, an apparently healthy female child, who was seen when 4 years and 9 months old, the disease had begun at 3 months of age and had continued in spite of the best local treatment until seen. A little fine hair sometimes appeared and fell again, and there had been no material improvement. Under active treatment, dietary and medicinal, with few local measures, there was a very satisfactory growth, the bald areas being covered within four months.

While alopecia areata will sometimes disappear spontaneously or yield quickly to treatment, in many cases it is very persistent, as may be judged from the following table of cases where the previous duration was noted:

TABLE 7.—ALOPECIA AREATA.

Duration before applying for treatment.	No of cases.
Few days	5
Few weeks	14
1 month to 2 months	15
2 months to 3 months	11
3 months to 6 months	15
6 months to 8 months	18
8 months to 1 year	13
1 year to 2 years	16
2 years to 3 years	11
3 years to 4 years	12
5 years to 6 years	16
7 years to 8 years	7
9 years to 10 years	4
Total	157

In the limits of this paper it is impossible to enter fully into a study of these cases, many of which present most interesting points; but a few data may be given which strikingly illustrate the position taken as to its constitutional nature.

One patient, a man from another city, was first seen when 27 years of age, and observed off and on for nearly fifteen years. At 2 years of age the hair fell in spots, and in one or two years he had lost all the hair and eyebrows. He wore a wig until 15 or 16 years of age, being entirely bald, until, after staying a short time at Richfield Springs, the hair began to grow, and at 19 he had a full crop of hair and whiskers. These remained until he was 26 years old, when bald areas appeared in the beard and shortly in the scalp. These increased in size until at his first visit, nine months later, about one-quarter of the scalp and hairy part of the face was denuded. The disease progressed in spite of rather irregular treatment, until almost all the hair had left the head and face, including eyebrows and lashes, and also the body and limbs, including the pubes and axillæ. He had, occasionally, a slight growth of hair here and there, but when last seen he still wore a wig and had no eyebrows. He was never very diligent in treatment, and had many business vexations and also depressing nervous influences at home. There were five cases in which the alopecia had thus become total.

Among the cases analyzed there were 50 in which distinct neurologic conditions were recorded, besides 3 which directly followed trauma of the scalp. Very many cases could be cited in which the disease appeared after profound nervous strain or shock, as in the case of the woman mentioned under trichorrexis nodosa, and in some instances this recurred several times. In a number of cases alopecia areata was accompanied or preceded by considerable itching. In 151 cases the onset was very sudden, the area or areas being entirely bald when they were first noticed, and in 14 there was recorded a slow onset.

The location of the disease is interesting. In 116 cases the scalp alone was involved, in 8 instances only the bearded face, and once the eyebrows and lashes alone were removed by the disease. In 12 cases the face and scalp were affected and in 29 cases the face, scalp and body, while in 5 instances the aleopecia was total over the face, body and limbs, and in 7 other cases it was almost so. In 33 instances the patients had other skin affections, 19 had eczema, and 2 had leucoderma. In but a single instance were there two in a family affected, sisters, and in two cases it was recorded that the trouble was hereditary; in two cases record was made of the possible contagiousness of the affection, which was not proven.

VII. MONILITHRIX.

This curious and rare affection of the hair, of which we have seen but a single case, and of which there are not much more than 60 cases on record, has certain relations to the conditions already considered which make it interesting in this connection. The disease is characterized by a series of even, nodular or fusiform swellings, giving the hair an uneven or beaded appearance; the hair breaks at the constricted or atrophic portions, and not through the nodes, as is the case in trichorrexis nodosa.

Little or nothing is known in regard to the true pathology or causation of this curious affection of the hair, but all observers agree that the constrictions must be

due to some defective development in the internodular portions, for what appear to be nodes or swellings are in reality only about the size of the other normal hairs. One observer suggests that the narrowing is due to an intermittent muscular contraction around the follicle just below where the sebaceous glands empty into it, where the young hair cells are still soft and readily compressed. It is, however, a disturbance in the hair due to defective nutrition or innervation, or both, as the idea of a parasitic cause is out of the question.

SUMMARY.

We find, then, that the hair is an active, live portion of the economy, subject to various alterations, dependent on its nutrition and innervation. The well-known changes which occur in the hairy coats of animals in ill health, and which have long been recognized as a valuable indication in regard to constitutional treatment, would seem to show that the same might also occur in man.

We have found that a certain activity of the hair follicles belongs to a particular period of life, puberty, and a waning of their powers seems to be a natural sign of advancing age. We have seen that in certain conditions of nutrition and innervation, as after fevers, etc., the hair follicles in some way take on different action, and various disturbances of the hair are observed, and that the effect of profound nervous or mental strain and shock can be evidenced in the hair.

Turning to clinical experience, we find that among 15,240 miscellaneous dermatologic cases in private practice a total of 1,129, or over 7 per cent., belonged to the group of affections of the hair now under consideration. An analysis of such notes as were kept of them presented many striking features illustrating the points considered in regard to nutritive and neurotic disturbances of the hair.

It is not claimed that anything very new or startling has been developed by this study, and some might even insist that all that has been mentioned is abundantly recognized by the profession. But, while in a measure this may be true theoretically, yet practically there is yet great need that the underlying principles be put more in practice; for it is the rarest occurrence to find that patients with the diseases which we have considered have ever previously been interrogated in regard to the matters which have been mentioned, much less that any serious and prolonged attempt has ever been made to rectify the very gross errors of life which have often been discovered.

In almost every instance, indeed, if a physician has been consulted at all, there has been only some local application given, while in the large majority of cases the trouble has been left to the hairdresser. It is true that the books state in a general way that attention should be directed to the state of the general health, etc., but, as stated, practically everything but the local condition is commonly ignored when these patients apply to the physician for aid.

It was our desire, by a careful study and analysis of a number of cases, to seek to ascertain some of the underlying causes of the affections of the hair here considered, in order that we might endeavor to place on a more substantial basis the principles which would lead to a more intelligent and successful treatment of the nutritive and neurotic disturbances of the hair.

531 Madison Avenue.

THE DIAGNOSIS OF PNEUMONIA IN INFANCY.*

ROWLAND G. FREEMAN, M.D.
NEW YORK CITY.

The diagnosis of pneumonia, the commonest of all winter diseases in infancy, is probably the cause of more error than that of any other disease and this error is largely due to the instruction ordinarily given by lectures and text-books concerning the characteristics of pneumonia in infancy. In an effort to make complete such description, portraying the different types, and differentiating between the lobar and lobular types, the whole matter, to my mind, is made obscure and more difficult for the student, although such complete descriptions are, of course, necessary in large works on pediatrics.

In the first place as to the difference between the lobar and lobular types in infancy. Occasionally a case will occur which does follow the adult lobar type, but such cases are rare, and the symptoms are not very different from those of the lobular type, the treatment is the same and there is no real necessity of any such differentiation in infancy. The most important fact and one which should be emphasized is that the pneumonia of infancy is a disease that should be recognized independently of signs ascertained by percussion or auscultation of the chest, such signs being valuable to corroborate the diagnosis and to locate the lesion. But the general picture of the disease is usually sufficient for an accurate diagnosis, and if one waits for the physical signs elicited by auscultation and percussion may have to wait until the patient is convalescent or never make a diagnosis in a really well-marked case.

This clinical picture of pneumonia in infancy has been set forth by Northrup, and it was my idea in this paper simply to emphasize the importance of recognizing it by the symptoms and to verify the diagnosis, if possible, by physical signs.

An infant with pneumonia, whether it be primary or secondary, suddenly becomes sick. The infant is dopy, indifferent or sleepy when a few hours previous it had been bright and active. It is noticed that the infant breathes much more rapidly, has a rise of temperature and usually that it develops a cough.

On taking the respiration and pulse accurately the relationship is apt to approximate 1 to 3, often going on to a ratio of 1 to 2, an ordinary observation being 50 to 150.

These five symptoms then: the sudden onset, depression, rapid respiration, fever and cough, are sufficient in many cases to create a suspicion of trouble with the lungs. In addition, another set of symptoms may be noted by observation. As soon as one looks at the infant, flaring nostrils are noted and usually the pneumonic type of breathing in which the ordinary type, consisting of an inspiration followed by an expiration and then a parse, is replaced by a type in which the inspiration is followed by a pause and the expiration accompanied by a pneumonic grunt indicating pain. Another sign occasionally elicited and very significant when present is rigidity of the neck and upper extremities, without rigidity of the lower extremities, this sign being due to a sore chest and an effort at protection.

These four signs—flaring nostrils, pneumonic breath-

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

ing and expiratory grunt, and rigidity of the neck and upper extremities—are almost pathognomonic of the disease.

The signs we find in the chest simply serve to corroborate our diagnosis. The shower of crepitant râles at the end of inspiration, the most characteristic sign; the occasional but rare area of dulness on percussion with diminished breathing, indicating an initial congestion; the presence of a localized bronchitis; all of these are of value in confirmation.

CONCLUSIONS.

1. Pneumonia in infancy is a disease furnishing characteristic signs on which a diagnosis may be based before the lungs are examined.

2. The symptoms are sudden onset, depression, rapid respiration with ratio to pulse of 1 to 3, fever and usually cough. If with these are noticed flaring nostrils, pneumonic breathing and expiratory grunt, a definite diagnosis may be made, while rigidity of the neck and upper extremities without rigidity of the lower extremities is an important confirmatory sign if present.

3. Auscultation and percussion of the chest should be used in confirmation of the diagnosis and for localizing the lesion and for information as to its character.

205 West Fifty-seventh Street.

THE AMBULATORY TREATMENT OF PNEUMONIA IN INFANTS AND YOUNG CHILDREN.*

THERON WENDELL KILMER, M.D.
Instructor in Pediatrics, New York Polyclinic Medical School and Hospital; Attending Pediatrist to St. Bartholomew's Clinic.
NEW YORK.

It is not so long ago that a physician who advocated placing out of doors an infant with pneumonia was thought to be defending a crime which should never be forgiven. Rapid advances along medical lines are being made, and I consider the fresh-air treatment of pneumonia to be one of the greatest and most beneficial advances that therapeutics has made in the last decade.

In advocating the fresh-air treatment I do not mean to be an extremist, for the man who goes too far is making no more progress than the one who timidly does not go far enough. It is by one's personal experience, by one's own failures and successes, that one is taught, and it is by means of these personal observations that medical science is advanced. Little do I care for the heated and lengthy discussions elicited by the reading of extreme papers on a medical subject, for if these papers be the writers' own personal observations, the authors are certainly entitled to believe what they have seen. It is with personal observations that this paper deals.

The data of the cases of pneumonia on which this paper is based are taken from the records of 2,322 cases of illness occurring in the department for diseases of children of a very active dispensary in this city. Each case was personally examined and a careful record of it kept. The usual mortality from pneumonia, especially bronchopneumonia, is high, Holt giving it as 10 to 30 per cent. in private practice and 65 per cent. in institution work. This series of cases is rather small from which to draw conclusions, but nevertheless it demonstrates that cases treated in an ambulatory manner do present an exceedingly small mortality. In fact, I really was apprehensive of presenting these observations to you until I learned that many other men were having just as good results as my own, and I tell you frankly that some months ago I mentally remarked: "If I present this paper to a body of medical men, they will pronounce me either a candidate for the psychopathic ward, or a direct descendant of Ananias."

The ages of these patients ran from 2 months—the youngest—to 12 years—the oldest. There were many robust, well-nourished children among the number, as well as some feeble, anemic and poorly nourished patients. There were specimens of all nationalities. There were in all 36 patients—16 boys and 20 girls. There were 16 cases of lobar pneumonia and 20 cases of bronchopneumonia. These cases presented themselves in the stage of congestion and consolidation. There were bottle-fed infants and there were breast-fed infants. There were children whose diet was perfect, and there were children whose diet consisted of almost anything at any time. A case was not tabulated as pneumonia until absolutely positive signs of the disease, such as bronchial voice and respiration, presented themselves to establish a true and certain diagnosis. Some of these patients had high temperature, 104 to 106, while others had low temperature, from 100 to 102, and there were one or two patients who had a normal temperature all through the disease. There were cases with intense cerebral involvement, such as hyperesthesia and convulsions, and there were cases in which the baby seemed in every way normal, excepting some slight ailment, such as a cough or diarrhea. The majority of the patients were brought to the dispensary because the parents thought some other disease existed, such as diphtheria, diarrhea and "colds." There were many of these infants and children that did not look as though they had had any personal hygienic care for weeks, while others were clean and neatly clothed. Many of the parents were illiterate and uneducated, while others had a fair share of cerebral development, and it is to the first class of parents that I want to draw your attention. Although these people were of the poorer class, and the majority of them possessing little learning, they were all eager and willing to carry out directions as regards treatment and did it surprisingly well.

These observations are recited only to demonstrate that, given a baby with pneumonia, no matter what his parents are, and no matter what his present bodily condition, a great deal can be accomplished and good results obtained by systematic treatment.

The first point in the successful treatment of pneumonia is to make a correct and early diagnosis. This can be done only by the use of a stethoscope (or small phonendoscope) and by having the baby undressed. That means naked. There is no clinician living that can pick out a small spot of solidified lung by the use of his ear alone applied to the surface of an infant's chest. This has been demonstrated to me many times. The ear is too large and does not fit the surface evenly to exclude extraneous sounds. What, then, has been the mode of treatment of these cases of bronchopneumonia and lobar pneumonia which have presented themselves at the dispensary?

INSTRUCTIONS REGARDING HYGIENE.

Fresh Air.—The mother is told in as simple a way and in as few words as possible what we expect her to

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908

do to help her baby to get well. She is told that she must place the child in her largest room—in many cases the parlor; she is told that the windows must be kept open all the time; she is told why she must do this: because her baby is breathing so fast that it requires more air. In good weather many patients are placed, well covered and with hot-water bottles at their feet, out on the fire-escape for hours at a time during the day; and in the summer time these babies remain out of doors day and night. A flat nursing bottle makes an excellent hot-water bottle. No matter what the weather, the mother is told that she must bring her baby to the dispensary every other day, and in some instances every day. Many times I have seen these patients brought out in pouring rain and blowing snow storms, and I am certain that these children owe their lives to these doses of fresh air rather than to doses of thick, syrupy, nauseous medicines, had they received them.

Clothing.—The mother is told that she does her child harm by keeping it bundled with innumerable articles of clothing, especially while the baby is at home. The patient should wear a thin undershirt next its skin and a nightshirt over it. If the baby has no nightshirt, the mother is told to put a loose-fitting dress on her child. The parents are warned not to place too many or heavy covers over the baby and not to hold the patient in the arms so that the bodily heat of the mother will be added to the already high temperature of the baby. The patient is best in bed.

Food.—In all cases the food is weakened to at least one-half of the usual strength. In the case of a breast-fed baby the mother is instructed to give from half an ounce to two ounces of boiled water just before each nursing. In the case of older children the diet should consist of milk, gruels, cereals and broths. The mothers are told that their children must have their food at regular intervals, and that there is no cause for worry if the food is not always taken. All the fresh-boiled cool water is given the patients that they desire. A young child should have nourishment about every four hours. All directions are not only given the mother orally, but are written out on paper so that she will not forget them. I have found it convenient to have printed slips, one side of which is left blank for written directions for the individual case, while on the reverse side are printed general directions, etc., to aid the mother's memory. The following are the directions:

CASTOR OIL.—Wet the spoon before placing oil in it. Hold spoon filled with oil on a piece of ice until thoroughly cold; then give immediately. For older children give oil between two layers of orange juice in a wet glass. Nothing should be given to eat or drink an hour before or an hour after giving castor oil. Keep patient quiet.

MUSTARD POULTICE.—Use . . . part . . . ground mustard and . . . part . . . flour. Rub into a paste with a little warm water. Apply between layers of old linen, muslin, or cheesecloth. Prepare fresh each time.

BARLEY WATER.—Use . . . tablespoonful . . . barley flour. Rub into a smooth paste with a small amount of cold water. Then add one pint of boiling water. Cook half an hour, strain and add boiling water to make up to one pint. Add one rounded tablespoonful of granulated sugar. Add a little salt.

OATMEAL WATER.—Use three tablespoonfuls oatmeal to one quart cold water. Boil two hours, strain, and add boiling water to make up to one quart. Add one tablespoonful of granulated sugar to the quart. Add a little salt.

DEXTRINIZED BARLEY (or Oatmeal) GRUEL.—Prepare as for Barley water (or Oatmeal water). When cool enough to taste add half a teaspoonful of Cereo to the pint of gruel, and stir until mixed.

Reduction of Fever.— Fever is best controlled by sponging the entire body with tepid water every four hours. The baby is placed on a towel on a table, the clothing is removed, the sponging is done quickly and the skin wiped dry. Many a baby will immediately fall asleep after sponging and get a much needed rest. Fresh air and sponging are the only means that are of any value for the mother to employ in the reduction of bodily temperature. The parents are carefully instructed as to the minute details of sponging and are told that, should the baby be hot or restless, it should be sponged with tepid water every four hours.

Counter-Irritation.— Mustard poultices to the chest act as counter-irritants and afford an immense amount of relief in the stage of congestion and incipient consolidation. They are made of from one to four parts of flour to one part of ground mustard, according to the age of the patient. For very young babies a greater proportion of flour to mustard should be used. The poultice covers the affected side from spine to sternum, well up under the arm, and should cover the whole lung. These poultices should be applied between layers of linen, muslin or cheesecloth once in four hours and left on for from ten to twenty minutes at a time, just enough to redden the skin. They should be made fresh each time.

Drugs.—The public is fast becoming educated to the fact that it is not the miltiplicity of prescriptions that characterizes the best physician. The one drug, if you can call it such, that played an important part and almost the sole rôle in this series of cases, is castor oil. An initial dose of castor oil (one teaspoonful to an infant, two teaspoonfuls to an older child) was given each of these patients. If castor oil was vomited repeatedly, then one grain of calomel, in doses one-tenth of a grain every half hour, was substituted. I believe that the following method of giving castor oil should be thoroughly explained to every parent: Wet the spoon before placing oil in it. Hold spoon filled with oil on a piece of ice until thoroughly cold; then give immediately. For older children give oil between two layers of orange juice in a wet glass. Nothing should be given to eat or drink an hour before or an hour after giving castor oil. Keep the patient quiet.

An occasional dose of castor oil was given every third day to keep the gastrointestinal tract clean. For the accompanying tight distressing cough the following was given to all infants:

R.	gm. or c.c.		
Tartar. emetic	.00065		
Ipecac	.00065	or	āā gr 1/100
Aqua	3.75		fl. ʒi

Sig.: One teaspoonful every two hours until six to eight doses have been given in twenty-four hours.

To the older children the following was given with excellent results:

R.	gm. or c.c.	
Ammon. muriate	.13	gr. ii
Ipecac	.0013	gr. 1/50
	or	
Elixir simplex	.60	m. x
Aqua	3.75	fl. ʒi

Sig.: One teaspoonful every two hours for six to eight doses in twenty-four hours.

The above two remedies seemed to make the patients more comfortable and were practically the only prescriptions given this series of cases. Heart stimulants were not used, because none of the patients needed them.

Rest.—To my mind, many a baby ill with pneumonia

would have recovered if the all too-zealous attendants had had sense enough to *let him alone*. The mother should be told very clearly that it is not necessary continually to "do something" for a patient with pneumonia. If a child falls asleep she should let it sleep. Sleep is the most beneficial thing it can have. She should try not to bother a child more often than every two hours at most; better still, she should let it have four hours' repose at a time. She should try to have the sponging, medication, feeding, etc., come all at once, say at four-hour intervals, so that between times the patient is not bothered.

SUMMARY.

Treatment of both lobar pneumonia and bronchopneumonia in these dispensary cases consisted in giving an initial purge (castor oil or calomel); mustard poultice to the chest; sponging to reduce fever; cutting down diet to one-half strength; hygiene of body, clothing and sick-room, etc.; light expectorant every two hours for six to eight doses in twenty-four hours; keeping gastro-intestinal tract clear; abundance of fresh air; rest.

It must be borne in mind that the above treatment was employed in this series of dispensary cases and that it is with this class of cases only that we are here dealing.

What, then, have been the results in pursuing the above method of treatment? One patient died, but not until the mother insisted on taking her baby to a hospital; nevertheless I shall include it in my observations. This makes our mortality at the dispensary 2.77 per cent., which is remarkably low compared to that of many a private practice or hospital. We do not claim that it is our special form of treatment which produced this low death rate from this dreaded disease, for other workers are obtaining the same good results. But what this study does show, and demonstrates positively and conclusively, is that by a combination of simple instructions to parents, and quiet, rest, proper food, and, above all, fresh air for the child, the mortality of one of the most dreadful diseases of childhood can be reduced.

165 West Eighty-fifth Street.

DISCUSSION.

DR. S. M. HAMILL, Philadelphia: There are two sides to every question and I do not think that Dr. Kilmer gave the other side very much consideration. I think that in many instances the ambulatory treatment of pneumonia in children is most desirable, but, to say that the only thing to do is to treat pneumonia in the ambulatory service, is a mistake. A number of things must be taken into consideration. One must know something of the home surroundings. When the people live in a hovel and the parents are intemperat, to say that the ambulatory service is the best is ridiculous. Of course, the hospital offers conditions which are better in every way. Another thing to consider in the ambulatory treatment is the danger of exposure of the child to the contagious diseases so commonly met in dispensaries. For this reason, one of our first duties to the patient is to reduce the number of trips to the dispensary to the minimum. I am sure that I have had quite as good results in the hospital treatment of pneumonia by placing the patients in the open air, as Dr. Kilmer has had in his ambulatory service.

DR. T. W. KILMER, New York: I am afraid that Dr. Hamill misunderstood what I said. I did not make any statement that the ambulatory treatment is the only treatment. There are, however, patients brought to the dispensary that must be treated and if we treat them as we did in this instance we will get better results than we could from any other treatment. If Dr. Hamill can pick out thirty-six consecutive cases treated in a hospital ward and give a mortality of 2 per cent. I think it remarkable. We have babies that do come to the dispensary for treatment; this is the way we treat them, and the results are as I have stated.

THE SMEAR METHOD AS A MEANS OF THE RAPID DIAGNOSIS OF RABIES,

WITH A REPORT OF THIRTEEN CASES.

JAMES B. RUCKER, JR., A.B., M.D.
PHILADELPHIA.

While in charge of the Laboratory of Bacteriology of the Indiana State Board of Health, in 1907, I had the opportunity of examining the brains of thirteen animals sent to the laboratory by health officers of the state. The disease from which these animals were suffering when they died or were killed was diagnosed by competent veterinarians or by physicians as hydrophobia or rabies.

In making the examinations my aim was to prove the presence or absence of Negri bodies and to note in what proportion of cases in which the bodies were found was the subdural inoculation of a rabbit or guinea-pig productive of the symptoms of rabies. My method for determining the presence of the bodies was the smear method as used and described by Williams and Lowden.[1] In the preparation of these smears the technic is as follows:

A small piece of the gray matter of the brain is excised and placed on a clean slide near one end. The cut in the brain should be at right angles to the surface, only a thin piece being taken, in order to avoid the white matter as much as possible. A clean cover glass is placed over the tissue and pressed down with the thumb until it is thinly spread out, and with even pressure the cover glass is drawn almost to the other end of the slide. A little practice in thus making the smears will result in a thin, even film of tissue being left on the slide almost its entire length.

The parts of the brain used for obtaining these bits of tissue were the cortex about the Rolandic region, the cerebellum and Ammon's horn. Two smears were made from each of these regions of the brain, and the smears were air dried. Two methods of staining were made use of in the search for the Negri bodies. In the first (Giemsa's solution[2]) the smear is at first fixed for five minutes in methyl alcohol. In staining the smears for determining the presence of Negri bodies, a solution is made from the Giemsa stain by adding one drop of Giemsa for each cubic centimeter of distilled water made alkaline previously by adding one drop of a 1 per cent. solution of potassium carbonate for each ten cubic centimeters of water.

This modified Giemsa solution is poured over the smear and allowed to remain on it for about three hours. The stain is then washed off in running water, and the preparation after being dried between layers of blotting paper is ready for examination. By this method the protoplasm of the Negri bodies takes the blue stain, while the central bodies and chromatoid granules take

1. "The Etiology and Diagnosis of Hydrophobia," Jour. of Infect. Diseases, May, 1909.

2. The Giemsa stain is made thus: Azur II eosin, 3.0 gm.; Azur II, 0.8 gm.; Glycerin, c. p., 250 c.c.; Methyl alcohol, 250 c.c. Both glycerin and alcohol are heated to 60 C. The dyes are put into the alcohol, and the glycerin added slowly, the while stirring. The mixture stands over night at room temperature and is filtered before using.

on a bluish-red or azure. Usually the color assumed by the large central body is more intense than that of the smaller ones around the periphery. The cytoplasm of the nerve cells stains blue, but the definition of the bodies can usually be made out very distinctly within it. The nuclei of the "bodies" appear red, while the nucleoli are blue. The red blood corpuscles are seen as small yellowish-pink discs.

Williams and Lowden suggest a shorter method of staining with the Giemsa solution: The smear is immersed in methyl alcohol for five minutes and then transferred to equal parts of distilled water and Giemsa solution for ten minutes. This is used for rapid diagnosis by them, but after having used both the longer and the shorter methods of staining with the Giemsa solution I find the longer one much to be preferred on account of the more marked clearness with which the central bodies and chromatoid granules stand out, allowing thereby a diagnosis to be made with more certainty, though not quite so rapidly as by the shorter method.

The second method of staining used by me in these cases of suspected rabies for determining the presence of the Negri bodies was a modification of the one suggested by Dr. Van Gieson, of the Research Laboratory of the New York Board of Health, and used by Williams and Lowden in their study on the Etiology of Rabies. The smear is fixed while moist, in methyl alcohol for one minute, then the stain, consisting of 10 c.c. of distilled water, two drops of a saturated alcoholic solution of rosanilin violet and 20 c.c. of Loeffler's alkaline methylene blue, is applied and warmed until it steams. Pour off the stain, wash in water and allow to dry in the air.

By this method the protoplasm of the "bodies" takes a decided red stain, the central bodies and chromatoid granules are a dark blue, nerve cells light blue, and the blood cells a pale pink. This staining mixture deteriorates after standing for an hour or so, wherefore it is necessary to freshly prepare it only as it is needed.

In examining these cases, six slides were made from each: two from the cortex, two from Ammon's horn, and two from the cerebellum. Three—one from each region—were stained with the modified Giemsa solution, and to the remaining three Van Gieson's stain was applied.

CASE 1.—S. L. M. Brain of a dog, which had been found running wildly and snapping at anything which came in its way. Killed by a pistol shot and its brain received at the laboratory Dec. 5, 1906. Negri bodies were found in the smears by both the Giemsa and Van Gieson staining methods, but no animal inoculation was made. A laboratory diagnosis of rabies was reported.

CASE 2.—O. E. M. Brain of dog, sent in Dec. 29, 1906. No history. Negri bodies found in smears stained by both methods. Animal inoculated subdurally with a few drops of an emulsion from cortex and cerebellum in 0.6 per cent. salt solution, but died the next day. Positive diagnosis of rabies made.

CASE 3.—L. T. R. Brain, medulla, and cord of cow in 50 per cent. glycerin sent in Jan. 29, 1907. Cow had been supposedly suffering from rabies, being restless and irritable, taking no food for several days before she was killed. A dog which had bitten this cow had been acting strangely for several days. He was tied up and became very irritable, refusing all food, and finally died in convulsions. Smears from brain, medulla and cord showed Negri bodies by both Geimsa and Van Gieson staining methods. A guinea-pig was inoculated subdurally with an emulsion from brain, medulla and cord, on Jan. 29, 1907, and died on the evening of Feb. 5, 1907. Negri bodies were found in smears from the brain of this guinea-pig. A positive diagnosis of hydrophobia was reported to the sender.

CASE 4.—C. G. B. Brain of dog sent Feb. 12, 1907. No Negri bodies found in smears. Guinea-pig inoculated subdurally without result.

CASE 5.—W. R. H. Brain of dog, sent in March 8, 1907. Negri bodies found in the smears stained by both methods. A guinea-pig inoculated subdurally with a few drops of an emulsion of the brain in salt solution did not develop rabies and was still alive and well Sept. 17, 1907. The sender stated that twenty-eight days after he had received a positive diagnosis of rabies from the laboratory, fourteen hogs bitten by the dog developed hydrophobia and died. Two cows and one other hog also bitten by the log did not develop the disease. The dog was very docile and a companion of the children. After biting the hogs and cows the dog was confined, and when approached by any one, he would growl and snap. At no time was frothing at the mouth observed, but for several days before he died he refused all food.

CASE 6.—J. F. H. Brain and cord of cat, sent in March 27, 1907. Cat had bitten a child and was killed and brain and cord sent to the laboratory. No Negri bodies were found in the smears, and animal inoculation resulted negatively.

CASE 7.—W. J. U. Brain of dog, sent in April 1, 1907. Negri bodies found in stained smears from the cortex and Ammon's horn, but not in cerebellum. No animal inoculation made because no animal was available at the time. A positive diagnosis of rabies was reported.

CASE 8.—J. L. B. Brain of dog, sent in April 18, 1907. Negri bodies found in all the smears. A rabbit was inoculated subdurally but died the next day. A positive diagnosis of rabies was reported, however. In reply to my letter containing the report, the veterinarian stated that the dog had manifested all the symptoms of hydrophobia and had bitten two men and six dogs.

CASE 9.—F. A. S. Brain of dog, sent in April 18, 1907. Negri bodies found in all the smears. Rabbit inoculated April 18, 1907, subdurally. Took no food for three days previous to May 2, 1907, when it died.

CASE 10.—W. E. R. Brain of dog, sent in April 25, 1907. No Negri bodies found in any of the smear. Guinea-pig inoculated subdurally April 25, 1907, died of rabies May 18 in its paralytic form—symptoms typical. Negri bodies were found in abundance in the brain of the guinea-pig.

CASE 11.—A. M. K. Brain of puppy, sent in June 29, 1907. Negri bodies found in all smears. Guinea-pig inoculated subdurally, but died in two days without any symptoms which would indicate hydrophobia. A child bitten in the face by this puppy did not develop hydrophobia. A positive diagnosis of rabies was reported.

CASE 12.—F. A. T. Brain of dog, sent in Aug. 2, 1907. No Negri bodies found in smears. Guinea-pig inoculated subdurally still alive Sept. 17, 1907. A negative report was transmitted.

CASE 13.—C. D. B. Brain of dog, sent in Aug. 29, 1907. Negri bodies found in all smears. Guinea-pig inoculated subdurally died September 20. Diagnosis of rabies was reported.

In all cases proved by the biologic test to be rabies, Negri bodies were found in the smears. In several cases Negri bodies were found in the brains of the animals which had been inoculated with an emulsion of the brain of the animal the diagnosis of whose disease was in question, and in the smears from whose brain Negri bodies were found.

SUMMARY.

The smear method is preferable to all other methods because:

1. It is much simpler than any other, on account of the extreme facility with which the smears may be made and stained.

2. It is much shorter than any other, inasmuch as the least possible time in which even a poor section could be made and stained is three hours, whereas the time

required by the smear method is from fifteen minutes to three hours.

3. In the smear method the Negri bodies appear very distinctly, and their minute structure is brought out very clearly.

4. The smear method is absolutely reliable.

256 South Fifty-sixth Street.

AN INFREQUENT TYPE OF OPTIC NERVE ATROPHY.*

HOWARD F. HANSELL, M.D.
PHILADELPHIA.

I am aware that my contribution to the subject of optic nerve atrophy can have but a limited application, and whatever practicability it possesses is clinical and therapeutic only. While the subject is fairly well understood, our knowledge pertains more to etiology and pathology than to therapeutics. Almost without exception inflammation and atrophy are secondary to some other affection, which, either directly by pressure or extension of disease from neighboring parts, or indirectly, following general disturbances of the nervous system, toxemia, alterations in the constituents of the blood or other remote causes impedes circulation and prevents nutrition to the nerve. Rarely does the inflammation arise in, and confine itself to, the optic nerve and its intraocular expansion. The treatment of the optic nerve affections, therefore, is the treatment of the underlying disease. Speaking generally, the ophthalmoscopic findings decide whether the atrophy is a sequel to inflammation, hence more or less acute, or whether it has followed connective tissue increase and destruction of the nerve fiber—the old-fashioned "ascending and descending" atrophy. My purpose in this paper is to confine myself exclusively to atrophy of the optic nerve as a disease in itself and not apparently associated with and dependent on other affections of the nervous system or of other organs of the body.

ANATOMIC RELATIONS.

The optic nerve may be divided arbitrarily for the purpose of clinical study into two sections: that between the chiasm and the optic foramen and that between the optic foramen and the eyeball. The former measures in the adult of average size from 7 to 11 mm. (¼ in. to 7/16 in.), and the latter from 23 to 30 mm. (⅞ in. to 1¼ in.), the entire nerve, from chiasm to globe averaging 35 mm. (1⅜ in.) in length. The intracranial portion of the nerve lies in the optic canal in the body of the sphenoid bone, and is said to be enveloped only by the pial sheath, since the other two sheaths after passing through the optic foramen become united with the two outer membranes of the brain. The optic canal contains only one other structure, the ophthalmic artery, given off from the internal carotid in close juxtaposition. Between the chiasm and optic foramen the optic nerve runs under the medial root of the olfactory nerve and is separated from it by the anterior cerebral artery. On the medial side it borders on the division between the hemispheres and on the lateral side it lies near the anterior perforated space.

It is important to remember, as a factor of no inconsiderable interest in the clinical study of optic atrophy, that no other cranial nerve lies in close enough proximity to become implicated by paralysis or inflammation by a morbid process that is confined to the optic nerve or its sheath, the third, fourth, the ophthalmic division of the fifth and the sixth nerves entering the orbit through the sphenoidal fissure. Its relation, however, to the sphenoidal sinuses and to the posterior ethmoidal sinuses is significant and throws light on the etiology of optic nerve affections. Professor Onodi, in his recent monograph (1907) on this subject, presents a series of photographs from original dissections which thoroughly explains this relation. He shows clearly how disease of the sinuses, directly by necrosis of the bony walls and extension of the disease through the openings thus made and involvement of the sheath of the nerve and indirectly by pressure from collections of pus or from a growth within the cavities, may affect the optic nerve. The walls of the sinuses are in some individuals exceedingly thin and yield readily to the tension of the contained material. The right sphenoidal sinus seems to be more often the cause of compression of the nerve and chiasm because of its slightly more intimate relation with them.

RELATION OF ACCESSORY SINUS DISEASE.

From this brief résumé of the anatomic relations of the intracranial portion of the optic nerve, it may be inferred that disease of the sphenoid and ethmoid sinuses may be ranked among the prominent causes of inflammation and atrophy. Sufficient stress, I believe, has not been laid either on the frequency or importance of this cause. Posey,[1] Arnold Knapp[2] and others have recently drawn attention to this causative connection and have insisted on the existence of accessory sinus disease despite the negative reports of laryngologists to whom their cases were referred for examination. It is doubtless impossible in the early stages of sinus disease for even the most expert examiners to detect its presence, but in the later stages the electric transilluminator is of great service. I wish here to repeat Posey's admonition that the ophthalmologist shall not be contented with the findings of one examination in cases which point to sinus disease as the cause of the optic nerve affection. In this connection Chance's case is of interest. He reports a case of presumed exostosis of the orbit which proved to be a bulging outward of the outer walls of the ethmoid cells due to an enormous collection of pus contained in the ethmoid and sphenoid sinuses and extending as far forward as the frontal sinus. There were no obstructions in the nasal or faucial passages, no discharge and no indication whatever that the sinuses were diseased. The optic discs were pale and the retinal veins were engorged.

As Bartels[3] has shown in his study of the pathology of blindness in orbital abscess, the optic nerve in purulent disease of the accessory sinuses may be affected by pressure, by extension of inflammation and by necrosis of the sheath and the fiber following impaired nutrition due to thrombosis of the small arteries and veins. First, then, in seeking for a cause the accessory sinuses should be examined thoroughly and repeatedly.

RELATION OF TERTIARY SYPHILIS.

Excluding local causes, no other etiologic factor can be compared in frequency with tertiary syphilis of the

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. THE JOURNAL A. M. A., Feb. 23, 1907, 676.
2. Arch. Ophth., January, 1908.
3. Arch. Ophth., January, 1908

structures surrounding the intracranial portion of the optic nerve. The lesions may involve the dura mater, the pia mater, the bones at the base of the skull, the blood vessels and the nerves themselves, and consist of chronic inflammation with exudation, gummatous infiltration, gumma and disease of the vessels. Uhthoff[4] believes that in most instances of intracranial optic neuritis the nerve was affected secondary to surrounding syphilitic lesions. "In Uhthoff's own observations (17 cases), as well as in 150 autopsies of cerebral syphilis reported by others and reviewed by him, the lesions of the optic nerve were but part of the lesions found at the base of the brain."

Gradle,[5] from whose paper I extract the above quotation, has reported 4 cases, and all of them are believed by him to be syphilitic. In my own 2 cases, to which I shall refer briefly later, one was due to acute disease of the accessory sinuses and the other to syphilis. In view of the prevalence of syphilis in the etiology, I think it would be proper to presume syphilis to be responsible, although there may be no tangible evidence of that disease. To depend on the patient's testimony or on the presence of other lesions pointing to syphilis, would be misleading. It must be remembered that intracranial optic neuritis belongs to the very latest manifestations and the patients may have been in ignorance of their earlier infection or purposely withhold a knowledge of it from the examiner.

According to Gradle, the symptoms are sufficiently marked to make the diagnosis reasonably certain. "Sudden diminution of sight without central scotoma and with nearly normal field, tendency toward recovery, but possibly ending in incomplete atrophy with absence of all other symptoms except initial headache, is the clinical picture of intracranial optic neuritis." He says the transient failure of sight in 3 of his cases can best be explained by the assumption of diffuse optic neuritis involving only the intracranial portion of the optic nerve and the clinical characteristics of this assumed lesion are consistent with our knowledge of the topography of the fibers in the intracranial trunk.

When, however, the cause is not syphilis, but disease of the accessory sinuses, the symptoms may vary from those described by Gradle. In Arnold Knapp's case the sight of the right eye had become suddenly affected. V. = 20/70; field: periphery normal, central relative scotoma of 5 degrees; left eye was normal. After relieving the posterior ethmoid cells of a large amount of pus, vision gradually returned and in seven weeks was normal. "A central scotoma always seems to be present if the case is examined early enough and the optic nerve lesion falls into the group of retrobulbar neuritis."

CASE 1.—*History.*—X., a lad of 17, suddenly became partially blind after exposure. He had been driving all day in stormy weather and had become thoroughly chilled. After eating a hearty supper he lay down on the kitchen floor near a hot stove and slept all night. In the morning vision was reduced in each eye to the perception of large objects.

Examination.—The retinal arteries were greatly reduced in size and the papillæ pale. The veins were of normal caliber. He had a large central negative scotoma reducing the seeing field to a small area at the periphery. The cause was laid to intracranial optic neuritis from disease of the sphenoidal sinus, and this opinion was later verified.

Subsequent History.—Treatment was of no avail. The optic nerves became atrophic and a large patch of retinochorioidal atrophy developed corresponding to the scotoma, due probably, as Birch-Hirschfeld[6] has pointed out, to toxic action on the optic nerve fibers.

The ophthalmoscopic appearances of the disc vary from the signs of acute neuritis and retinal edema in the acute cases, to a fine almost imperceptible deeply seated paleness, and this variation seems to be independent of the cause. In Gradle's first case the discs were normal; in the second, the same, in the third, the same at first, but two years later "an unquestionable though very slight atrophy of the left optic nerve while the right papilla was suspiciously pale;" the fourth was healthy. In Knapp's case there was "pronounced neuroretinitis, with a radiating figure of white lines and dots about the macula."

In my first case the atrophy was well marked, and in the second there was apparently good retinal and nerve circulation, but really a slight but positive loss of vascularity in the nerve head. It seems that the diagnosis of affections of the intracranial portion of the optic nerve can not positively be determined by the ophthalmoscope, because its signs do not materially differ from those of atrophy from affections of other parts of the nerve. Yet a "suspicious paleness," remaining unchanged through months and attended with comparatively great loss of vision, points to the situation of the lesion in the intracranial portion. The pupillary symptoms are not significant. The size of the pupils and any difference between them may be accounted for, in uncomplicated cases, by the loss of vision and the difference in vision between the two eyes. Moreover, dilated or unequal pupils may be misleading because they may indicate a lesion farther back in the brain than the chiasm or an extensive disturbance of the nervous system. Pupillary inequalities are present in many different affections, both functional and organic, and are more significant of the gravity of the disease than of the locality of the lesion.

The same statement may be made concerning ocular muscle paralysis. Its presence indicates simply that the lesion is not limited strictly to the intracranial portion of the nerve, but has originated either some distance away or has extended from the canalis opticus backward from the chiasm, involving the fifth, fourth, third and sixth nerves, respectively, or forward into the sphenoidal fissure. Its absence would point to the limitation of the lesion between the anterior border of the chiasm and the foramen opticum. Headache is a common symptom. It is violent and almost continuous in sinus disease and paroxysmal in syphilis. It is not characteristic and does not differ essentially from the headache of refractive errors and many other cerebral and general affections.

CASE 2.—*History.*—Mrs. J., aged 35, was infected by her husband with syphilis eight years ago. She received the usual treatment at the hands of an able and careful physician under whose care she remained for a number of years.

She considered herself well and for four years appeared to be so excepting for an occasional break-down due to a valvular heart lesion. In the spring of 1906 she consulted me on account of headache and failing vision of the right eye.

Examination.—R. V. = 20/50, L. V. = 20/30. Low hyperopia. Both optic discs were slightly pale with little noticeable difference between them, although the right was possibly a trifle paler, no limitation of either field for white, but concentric contraction for all colors. Urinary analysis showed a trace of albumin, no sugar, no casts.

4. von Graefe's Arch. f. Ophth., xxxix, 1.
5. Arch. Ophth., March, 1907.
6. von Graefe's Arch. f. Ophth., lxv, 3.

Treatment.—She was given inunctions of mercury, large doses of potassium iodid, hot baths and sweats, repeated every few weeks. In six months V. had fallen to R. 20/70, L. 20/50; the optic discs were unchanged in color, but the vessels of the retina showed signs of a mild degree of pressure, presumably exerted on the nerve. The veins were dilated and slightly tortuous, the arteries narrowed. The paleness of the discs was peculiar. At first glance the papillæ seemed to be entirely normal and of healthy color, but thorough inspection showed a deep-seated loss of color. At this time the right eye began to diverge, from paresis of the third nerve, fusion of the images requiring a prism of 40 degrees. Central vision was the same, but the fields were limited for white as well as for colors. Vision slowly declined in the right until the spring of 1907, when it equaled only 20/250. In June she stated she had attacks of severe pain, lasting from 12 to 18 hours starting in both eyes and passing back to the occiput and cervical regions. V. R. = 5/200, L. = 20/50. January, 1908, she reported three attacks of pain in right temple with swelling of the soft tissues, attended with transient diminution of vision. At this time there was in the right eye a small central scotoma for red and green. Under treatment vision and fields were improved (R. = 20/100), the scotoma disappeared, but the diplopia remained unchanged. The pupils were equal and responsive throughout, and the patient never seriously suffered in her general health. During the two years of observation of this patient the ophthalmoscopic findings remained without appreciable variation. Even when the vision had sunk to 5/200 and the field for white was limited to a circle of 15 degrees around the fixation point, the deep-lying paleness of the disc had not increased, and again when vision recovered to 20/200 the color was unchanged.

I believe the process in this patient to be a neuritis of varying intensity affecting the intracranial portion of the optic nerve, syphilitic in origin, basing the opinion on the absence of pupillary phenomena and of symptoms of general disturbance of the nervous system, the peculiar deep-seated paleness of the papillæ, the concentric limitation of the fields, the temporary scotoma and the unprogressiveness of the affection.

DISCUSSION.

DR. J. G. HUIZINGA, Grand Rapids, Mich.: I have now a case similar to the one described, the history of which is this. A year ago the patient first consulted me concerning a rapid diminution of vision. Examination of the fundus disclosed an inflammatory condition of the disc. I determined that this was due to ethmoiditis. Operation was declined by the patient until the vision depreciated to such extent that it was impossible for him to count fingers. Then he had an operation done and immediately his vision improved to the extent that he could tell a one-dollar from a two-dollar bill. He has had two operations on the ethmoid cells and one attempted on the frontal sinus which was absent. When the infection in the cells was worse the vision was worse; it was a very clear case. Whenever there was a clogging up of the ethmoid cells the patient's vision went down and when they were opened up and cleansed his vision improved. I have had him under observation trying to restore vision by vibratory massage and electricity, which I am trying out experimentally, but without results so far.

DR. H. F. HANSELL: The remark of Dr. Huizinga about the variation in vision calls attention to an important point in the diagnosis of these cases of intracranial disease with optic neuritis. In my own case, that due to syphilis, vision varied from 20/30 to 5/200 and back again to 20/30. For the relief of the accessory sinus disease I refer to those more competent than I am. The case due to syphilis I treated in the usual way, by mercurial inunction and increasing doses of iodid of potassium and by sweat baths. I believe that the diaphoresis is valuable in enabling the patient to assimilate the mercury and iodid and that the combination of the three is the best treatment we have.

DIFFUSE INTERSTITIAL KERATITIS IN ACQUIRED SYPHILIS.*

A. E. DAVIS, A.M., M.D.
Professor of Diseases of the Eye, New York Postgraduate Medical School and Hospital.
NEW YORK.

Interstitial keratitis, the result of acquired syphilis, is a rare disease, if we are to judge from the number of cases reported in literature, only about one hundred cases having been reported up to date; and judging from the number of cases reported in American literature it is an extremely rare disease, only about a dozen cases having been published. Furthermore, to emphasize the extreme rarity of the reports of such cases, I may state that, so far as I have been able to ascertain, the volumes of the transactions of the American Ophthalmological Society, published first in 1864 and continuously since then, do not contain the report of a single case presented to the society, and the same is true of *Knapp's Archives of Ophthalmology*, begun in 1869; the *American Journal of Ophthalmology*, begun in 1884; *Annals of Ophthalmology and Otology* (now the *Annals of Ophthalmology*), begun in 1892, and *Ophthalmology*, begun in 1906. Under the title of "Corneal Lesions in Acquired Syphilis," Dr. W. H. Wilder[1] has reported three such cases. The *Ophthalmic Record*, begun in 1891, has the original reports of two well authenticated cases, and of one doubtful case. Ellett,[2] Marlow,[3] and Hildrup,[4] report these cases.

I have not taken into consideration the annular or disciform varieties of keratitis or other unusual forms of interstitial keratitis, confining myself strictly to the diffuse interstitial keratitis, as is so commonly seen in cases of inherited syphilis. The small number of published cases is remarkable when we remember that these are the leading ophthalmic journals in America, and also the great length of time covered by them. Not only is there a lack of original cases reported in these journals, but, as would be expected under the circumstances, very rarely indeed is there an abstract of such cases from foreign literature. Why wonder, then, that some leading oculists doubt the existence of the disease at all from acquired syphilis.

When I presented my first case to the New York Ophthalmological Society, December, 1907, one of the oldest members of the Society, the late Dr. D. B. St. John Roosa, said he had never seen a single clear case of interstitial keratitis from acquired syphilis in his long practice of forty-eight years, either private or hospital; and in a personal letter to me subsequently, in support of his contention, he cited Hutchinson's classical memoir,[5] as follows: "Although I will not make so sweeping an assertion that interstitial keratitis never occurs excepting in the subjects of inherited taint, yet I can not conceal from myself, and have no wish to do so from my reader, that such is my present belief. It seems, moreover, improbable that a peculiar disease, remarkably well separated from all its congeners, both by its symptoms and its progress, should acknowledge a specific cause in nineteen instances, and in the twentieth present precisely the same phenomena in total in-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. The Journal A. M. A., Dec. 21, 1901, xxxvii, 1669.
2. Ophth. Rec., ix, 283.
3. Ophth. Rec., xiii, 113.
4. Ophth. Rec., xiv, 214.
5. Ophth. Hosp. Rep., 1858, i, 231.

dependence of such origin. It is only fair, in passing, to ask of those who are inclined to test the accuracy of this opinion that care be taken in the diagnosis."

In looking over the literature on the subject, however, I find that Hutchinson had occasion to change his mind later. In his retiring address[6] from the presidency of the Ophthalmological Society of the United Kingdom, in commenting on a case of interstitial keratitis in acquired syphilis published by Mr. Morton,[7] he says: "So far as I know that case remains practically unique. I have seen a few doubtful and ill-marked parallels, but never one that could be properly placed by its side. Why keratitis should be so common in inherited syphilis, and so rare in the acquired disease is one of the pathological enigmas for which as yet we have no answer. Mr. Morton's case was not sent specially for his delectation; there are others like it if we could but find them, and to find them we want the help of the army of trained specialists now associated in this Society. Our volumes contain, so far as I know, no reference whatever to the occurrence of keratitis in acquired syphilis."

How near these words (spoken twenty-two years ago) come to describing accurately the condition now existing in American ophthalmic literature, is apparent from my opening remarks. Yet, we all know that interstitial keratitis from acquired syphilis is not extremely rare. If we would but look for such cases and report them, I am sure that many could be placed on record, and that is one of the obects of this paper, to direct attention to the importance of publishing such cases.

Callan, of New York, has reported several such cases verbally, although not publishing a single one. Several members of the New York Ophthalmological Society, in discussing the case shown by me, said they had seen anywhere from one to seven such cases in their own experience, yet not a single case have they thought worth while to report. Most of the present-day ophthalmic text-books (there are a few exceptions) speak of acquired syphilis as a cause of interstitial keratitis, but report no cases that I have been able to find. If I have overlooked cases, as undoubtedly I have, in my limited time to look up the literature on the subject, I trust that my confrères will be good enough to cite any they may know of. It is high time for some one to call attention to these hitherto neglected cases, and to urge the publication of the same, at least in sufficient numbers to remove doubt of the existence of such cases. I beg, therefore, to report two cases—the only two well-authenticated ones seen in my practice of sixteen years. Both of these cases were seen this winter, one, in fact, while engaged in writing this paper.

CASE 1.—*History.*—Mr. C. M. M., aged 27 years. This patient came to me Oct. 5, 1907, because of pain and failure of hearing in the right ear. He gave a history of having the drum punctured six months previously because of an acute abscess.

Examination.—I found the drum membrane somewhat congested, shrunken, and a scar in the lower and posterior quadrant. Hearing had been reduced to 7/40. Bone conduction was normal; hearing in the left ear normal, 40/40; bone conduction and air conduction normal. There was a chronic laryngitis. By inflating the ear and treating the throat, the pain in the ear was completely relieved in a few days. On November 30, about two months after consulting me concerning his ear, he consulted me because of an acute inflammation in each eye, more pronounced in the left. At this time he admitted the history of syphilis of one year's duration, and a report from his family doctor who treated him from the beginning confirms this. The patient had a primary chancre followed by secondary eruptions and sore throat; in fact, was under treatment by his family physician when he first came to me, but of which he made no mention.

Present Condition.—There are absolutely no indications of inherited syphilis at all. The teeth are perfect and there are no scars about the mouth or other marks of congenital syphilis of any kind. The man is robust in appearance.

Local Condition of Eyes.—For the last two weeks the patient has complained that the eyeballs have gotten red at night, burned, and that the light hurt him very much; tears also ran from the eyes. At the present time both eyes are inflamed, there is a marked circumcorneal injection in the left eye, and almost the entire cornea is covered with a grayish haze of a typical ground-glass appearance, and deep in the corneal surface can be seen a number of punctate spots, together with a few fine blood vessels. The right eye is affected very much in the same way as the left, but to a lesser extent. Vision in the right eye has been reduced to 20/30 and in the left eye to 20/50, although his vision, he tells me, was absolutely perfect before the present attack.

Treatment.—The patient was placed on atropin and hot water, locally, and the mixed treatment was pushed to the full limit. With the pupils well dilated under atropin, there were distinct changes in the chorioid to be observed far forward in each eye, and especially well marked in the left eye. After a few weeks' treatment the inflammation subsided rather rapidly, until the ground-glass appearance has almost disappeared.

March 7, 1908: The right eye is completely well, except for a slight circumcorneal injection; no infiltration of the cornea and no punctate spots remain. In the left eye all the gray haze has disappeared, together with most of the blood vessels, and but one very small punctate spot can be seen under the magnifying glass, and here and there a very fine blood vessel. The vision in the right eye was brought up to 20/20, and in the left eye to 20/40. There remains some congestion in the fundus of the left eye, and a few fine granular shreds floating in the vitreous.

CASE 2.—*History.*—Mr. G. B., aged 35 years. The patient consulted me first March 11, 1908 (consequently I have had him under observation about one week), with a history of his left eye being sore for the last two months, sensitive to light, running tears, and with rapid failure of vision in that eye. His family history is absolutely negative, in so far as can be obtained by me and by his family physician, the family physician assuring me there is no trace of syphilitic taint to be found in his family on either side. He is a married man and has a family. The first child died at the age of 8 months, the second child at the age of 6 months, the next two were miscarriages, and since then his wife has given birth to four healthy children, all now living.

He gives a history of a hard sore occurring on the penis three years ago. It was about two months in healing, but he denies any chance of infection except from his wife. Although there is this distinct history of the hard sore, there have been but few secondary symptoms. At the present time there is a slight enlargement of the glands in the neck and in the inguinal region. The man is robust in build, being about 5 feet 10 inches in height, and weighs about 190 pounds. He has absolutely none of the marks of congenital syphilis anywhere, and apparently is in perfect health.

Local Condition of the Eye.—The upper one-sixth of the left cornea is covered with the most pronounced salmon-patch I have ever seen; so deep, in fact, that it is almost liver-colored in appearance, while the rest of the cornea is completely covered with an intense grayish infiltrate. There is a slight circumcorneal injection, a very deep anterior chamber, and vision is reduced to counting fingers at six inches. It is as typical a case of diffuse interstitial keratitis as I have ever seen. The right eye is not affected; the vision is 20/40 without correction; the fundus appears to be normal. The fundus of the left eye

6. Tr. Ophth. Soc. U. Kingdom, 1886, vi, 517.
7. Moorfield's Hosp. Jour., 1874.

could not be seen, because of the intense infiltration of the cornea. The patient gives a history of no other disease that would be likely to cause the present condition. There is no history of rheumatism, influenza, malaria, gout, etc. There is no previous history of an eye affection of any kind.

Wandel,[8] who gives Fournier the credit of reporting the first case of this nature, reports a case himself and reviews the literature of forty-five cases.

It is rare, indeed, in these cases to have the salmon-patch. In fact, Trousseau says[9] that the salmon-patch never appears in these cases, and Mr. G. Anderson Critchett[10] said he had never been able to persuade himself that there was a true salmon-patch in the cases observed by him. In the case reported by Marlow,[3] the appearance of the cornea was very much like that presented in my second case, and I venture to give, very briefly, the case as reported by him.

A woman, aged about 30, was brought to him with a chancre of the conjunctiva in the lower retrotarsal fold of the right eye, with the preauricular and submaxillary glands enlarged on that side. He prescribed antispecific treatment, and did not see the patient again for ten years, when she presented herself with a typical interstitial keratitis in the right eye, the whole cornea being occupied by a diffuse patch of haze, while the upper part, perhaps 1/5, was covered by the characteristic salmon-patch of Hutchinson. The left eye was unaffected. The scar of the chancre was plainly visible at this time. She was not seen again.

Lange[11] also has reported a case of interstitial keratitis following a primary sore of the ocular conjunctiva.

Another very well authenticated case of interstitial keratitis, with the distinct salmon-patch, due to acquired syphilis, is reported by J. B. Lawford,[10] with four others, two of which were of doubtful authenticity. The particular one to which I refer is as follows:

Woman, aged 39 years. Her right eye was affected by diffuse interstitial keratitis. In the upper part the cornea was vascular and gray, and at the extreme upper edge was a very distinct salmon-patch. The pupil was active and dilated circularly under atropin. In the left eye nothing abnormal was found. There was no history of a previous eye affection. History as to syphilis was uncommonly definite. Thirteen years before she had prolonged affection of the throat, a skin eruption and loss of hair, and one year previous to coming under observation she had perforation of the hard palate. She brought to the hospital her young daughter, Violet H., aged 8, suffering from typical interstitial keratitis in both eyes. Her first child was living, aged 18. Five subsequent pregnancies resulted in stillbirths; then the daughter, Violet, and there are three younger children.

The patient was under observation four months, treatment being iodids and atropin. She was greatly improved. Mr. J. H. Herbert Fischer furnished the notes of this case for Mr. Lawford.

Mr. George Anderson Critchett, in discussing the case presented by Mr. Lawford, said he was glad to hear that a distinct salmon-patch had been met with in one case; that he had never been able to persuade himself that there was a true salmon-patch in any of his cases, though there was generally vascularity, but the opacity in the cases he had seen had not, as a rule, been so deep, so interstitial as in inherited cases. Mr. Griffith, in discussing the paper, mentioned the fact that Mr. Hutchinson had reported a case as a secondary manifestation in syphilis. He himself had seen four cases; in one of these the sight was lost—only the perception of light remaining, although he had given a favorable prognosis.

This point in regard to the loss of sight should be borne in mind by oculists in giving a favorable prognosis in these cases, although in most cases due to acquired syphilis the disease runs a much lighter and quicker course than in those of inherited syphilis.

Another interesting question has been brought up in connection with these cases, and that is whether it is possible for a man inheriting syphilis to acquire syphilis primarily himself, and the disease (interstitial keratitis) in this way be due to the inherited rather than the acquired taint. In this connection Fritz Mendel[12] reports the case of a young man whose mother was syphilitic, and who had suffered from this hereditary taint in the first year of his life, but acquired syphilis at the age of twenty-one, and had both eyes affected at this later date with a typical diffuse keratitis, which cleared up under free inunctions of mercury.

Mr. J. Herbert Fischer,[13] in a recent paper on some cases of interstitial keratitis from acquired syphilis, reports a number of cases. He expresses the opinion that interstitial keratitis from acquired syphilis is generally a tertiary manifestation; that it seems usually to attack only one eye, and that the infiltration frequently limits itself to a portion of the cornea only; that the keratitis, as far as it goes, is identical in clinical appearances to that due to the inherited disease, and that the statement made by Nuel, that it was usually secondary to iridochorioiditis, was by no means accepted universally. He also expressed surprise that more cases had not been reported. Mr. Sidney Stephenson, in discussing the paper, stated that about one hundred cases had been reported in literature, and that the average time of the development of interstitial keratitis after the primary affection was 10.8 years. He also thought that the unilateral location of the affection was due to treatment and that the bilateral cases occurred in the untreated cases. In a very recent communication, Mr. Stephenson,[14] states that nearly every case of interstitial keratitis is secondary to disease in the anterior part of the uveal tract. This opinion coincides with Nuel's.

It is interesting to note that this disease has been produced experimentally in the lower animals—rabbits, monkeys, etc.—by scrapings from lesions, chancres of the human being, and that the spirochetes had been found in such lesions. Mr. Sidney Stephenson also mentioned the fact that he and other observers, Stock, Peters, Römer and Babb, had found the spirochetes in congenital syphilis of the eye.

PATHOLOGY.

As to the pathology of the disease I shall say but little, except to quote briefly Mr. J. Herbert Parsons.[15] He says: "The cases of true interstitial keratitis, in the restricted clinical sense, which have been examined microscopically, are very few and are mostly complicated by other conditions which make it difficult to determine the anatomy of the disease. Even amongst the cases examined, a large proportion of those described as parenchymatous keratitis were undoubtedly tubercular. This raises the question of the true etiology of the disease. In England we are accustomed to lay the typical condition to syphilitic origin, and no satisfactory proof has been brought forward that this view is

8. Wchnschr. f. Therap. u. Hyg. des Auges, December, 1903.
9. Ann. d'ocul., 1895.
10. Tr. Ophth. Soc. U. Kingdom, 1900, xx, 67.
11. Tr. Ophth. Soc. U. Kingdom, 1892, xii, 74.
12. Centrlbl. f. Prakt. Augenh., January, 1901; Med. Press and Circ., December, 1907.
13. Ophth. Soc. U. Kingdom, November, 1907; also Ophth. Rec. (London), Jan., 1908.
14. Tr. Ophth. Soc. U. Kingdom, May 25, 1907.
15. The Pathology of the Eye, i, 1, 191.

incorrect. . . . There is a difference of opinion as to the cases of true interstitial keratitis, V. Michel and others distinguishing between a primary and a secondary keratitis. In the former, a triangular opacity appears at the margin of the cornea and gradually spreads over the whole area; it is often followed by iritis, keratitis, punctata, etc., and is ascribed by V. Michel to syphilitic affection of the marginal loops of the blood vessels. The secondary form is distinguished by marked inflammation of the uveal tract, and often of the sclerotic, more particularly in the anterior part of the eye."

According to Stephenson, the cause of the keratitis is the deposit and multiplication in the cornea of the *Treponema pallidum*, which comes from the uveal tract.

DIFFERENTIAL DIAGNOSIS.

At times it is extremely difficult to say what is the true cause of diffuse interstitial keratitis. The tuberculous and the syphilitic forms are so nearly alike clinically that it is often impossible to distinguish between the two, and even difficult to arrive at a conclusive differentiation by microscopic examination. Bull[16] has classified the syphilitic affections of the cornea, due to acquired syphilis, into the following four classes:

(1) Diffuse parenchymatous, or interstitial keratitis.

(2) True keratitis punctata, of Mauthner; which is exactly the same as Hock's specific punctate keratitis.

(3) Keratitis punctata, with general clouding of the cornea.

(4) Gummatous keratitis.

It is well to bear in mind this classification, as it will be of service in arriving at a diagnosis and in classifying the cases.

Von Hippel, Jr.,[17] says: "The question as to whether there are certain subjective symptoms of the eye diseases that would prove the syphilitic or tuberculous character, has to be answered in the negative. The limited vessels in the deeper strata of the cornea and the chorioid, chorioiditic changes considered by Hirschberg as characteristic of lues, are also found in the tuberculous form."

It is evident, therefore, that we must depend chiefly on the clinical history of the case and the symptoms found when the patient presents himself and the effect of treatment on such symptoms, to arrive at a diagnosis, as it is seldom, indeed, that an opportunity is presented for a microscopic examination on such cases. I would suggest that Calmette's test might be of service in clearing up the diagnosis in these cases.

CONCLUSIONS.

1. Diffuse interstitial keratitis may occur as a result of acquired syphilis.

2. It usually occurs as a late secondary sign of the disease or during relapses in the tertiary stage of the general disease. Stephenson gives the average time of development of interstitial keratitis as 10.8 years after the primary sore. Loewinson has reported one case as early as three weeks after the appearance of a primary sore, while Ellett reports a case appearing as late as twenty-three years after the infection.

3. It almost invariably affects but one eye, although there are a few exceptions reported where both eyes were affected.

4. It runs a quicker and lighter course, as a rule, than the cases due to inherited syphilis, and is rarely harmful to the sight. It should be remembered, however, that Griffith has reported one case in which the sight was entirely lost.

5. True salmon-patches occur but seldom in these cases.

6. It is difficult to make a clinical diagnosis between the syphilitic and the tuberculous forms of the disease, and even a differential pathologic diagnosis is not always conclusive.

7. The prognosis is favorable, though it should be somewhat guarded from the fact that sight has been lost entirely in one case.

DISCUSSION.

DR. J. L. THOMPSON, Indianapolis: I have had in thirty-eight years at least a dozen of these cases, but never reported them, for I supposed that others had met with them also. As a general thing there is a little plastic iritis with it and I have also found an inherited condition of this kind in inherited interstitial keratitis. The only difference I know is that in the inherited disease years and years elapse before the opacity disappears, but in these other cases they will last three or four months and still leave a little opacity, just as in the case of the congenital disease. I am astonished that there have not been more cases reported.

DR. W. H. WILDER, Chicago: I had much the same impression as Dr. Davis when I reported three cases of this disease some years ago before this section at the meeting in St. Paul. Yet when I consulted the literature I found it rather sparse, and discussion elicited the fact that it is a rather rare condition. I urged that we should look more carefully for the existence of acquired syphilis and not think that an interstitial keratitis is necessarily due to inherited disease, for it is no uncommon thing to find acquired syphilis in the very young. I noticed that there was not that great tendency to vascularization of the cornea observed in keratitis due to inherited syphilis, nor the typical salmon-patches, but sometimes there will be observed an appearance like sclerosing keratitis, so that we are not sure that it may not be a case of tuberculous origin. In case of doubt, therefore, not finding a well defined syphilitic history, one should make some kind of test to determine if tuberculosis might possibly be to blame for the condition.

DR. LEARTUS CONNOR, Detroit: In one case which I have observed quite recently I was able to differentiate tuberculosis from syphilis by an examination which resulted in finding the spirochetes, now regarded as the specific element in syphilis.

DR. A. R. BAKER, Cleveland: Before reading this paper I had imagined that this condition was more frequent. I recall only one case in which I doubted that the condition was due to congenital syphilis. In that case I got a history of what was supposed to be a soft chancre in a young man of 17 or 18 years, but he had had no treatment. He came under my observation at the age of 29 with typical salmon-patch, and I treated it as chancre, yet a consultant that I had at the time thought that it was a case of tuberculous trouble and the question was left open. Since then, however, the man married and had a child that developed interstitial keratitis, so I do not think that there was much doubt but that this case was one of acquired syphilis.

DR. A. E. DAVIS, New York: I think that there can be no question at all as to the origin of some of these cases because the disease has been produced in the lower animals by the scrapings from the human chancre, transferred to the animal and later the spirochetes have been found. In my own cases I did not use the Calmette reaction because both eyes were affected in the first, and in the second the patient did not remain under observation. I mentioned in my paper that such a test would be of advantage in the differential diagnosis in such cases. I think a man may have both inherited and acquired

16. A System of Genito-Urinary Diseases, Syphilology and Dermatology, Prince Morrow, vol. ii, p. 550.
17. Twenty-fourth Rep. Ophth. Cong., Heidelberg, Aug. 18, 1895.

syphilis. One case has been reported where a child had congenital syphilis and at one year of age had interstitial keratitis, then later in life acquired syphilis and had a second attack of interstitial keratitis.

OPACIFICATION OF THE CORNEA FOLLOWING CATARACT EXTRACTION.*

VARD H. HULEN, A.M., M.D.
SAN FRANCISCO.

The following case is the only one I have seen among 209 cataract operations, and seems worth placing on record:

History.—D. D., male, aged 81 years, retired furrier, native of England, entered the University of California Hospital Aug. 23, 1907, to be operated on for hemorrhoids. He was recovering from a carbuncle and lumbago. The medical report of his physical examination gives the heart action as being intermittent and irregular, with systolic and diastolic murmurs; the result of the blood examination was not significant. Senile breathing; lungs negative; urine gave trace of albumin; yet all his life he had been considered a very well man. The recovery from the general anesthetic and operation was prompt and uneventful.

Examination.—The patient being practically blind, I examined his eyes September 6. An interesting ocular condition was found with an uncertain history. He stated that for three months after birth his eyes did not open, also that he had a congenital cataract in the left eye. (If the former were due to ophthalmia neonatorum the latter was probably an anterior polar cataract.) The vision of the right eye was good for all purposes until he was 45 years old, when, after a fall on his head, glasses for reading became necessary. Attention was not attracted to his eyes again until 1893, when he had an attack of pain in the right eye, accompanied by failing vision. But even before this he thinks his sight was not perfect. Two years later the vision had gradually failed until reading was no longer possible. About this time a competent oculist told him that there was a chalky degeneration of the left lens which irritated the right eye somewhat and advised extraction of the lens. Vision of the left eye had never changed.

Ten years ago an ophthalmic surgeon of national reputation operated on his left eye. A preliminary iridectomy was done, later the cataract was extracted without accident. Neither pain nor inflammation attended, but there was a turning in of the lashes. No vision was given by the operation.

Inspection revealed a spastic entropion of the right lower lid which was successfully controlled by repeated applications of collodion. For some conjunctival irritation due to the entropion a boric acid wash and the occasional use of argyrol were advised. Patient's general condition steadily improved. On September 20 he was transferred to my service in the hospital, and the following notes were made:

Status Præsens.—Left eye: Cornea rather thinly but entirely opaque, with patches of greater density, while the site of the corneal section, two millimeters from the limbus, is solidly white. The opacity appears to be in the stroma, but the epithelial covering is very irregular and steamy. The key-hole pupil is faintly visible. Tension normal; vision equals movement of hand in all directions. Right eye: Cornea clear and slightly anesthetic. Lens appears a dark amber color. The ophthalmoscope shows red reflex around the periphery of cataract when pupil is dilated. Tension normal. Vision equals perception of light; projection good.

Treatment.—I advised extraction of the cataract and performed the preliminary iridectomy on this date. Atropin instilled, bandage applied, rest in bed. No reaction whatever followed the operation, blood remaining in the anterior chamber after the cut of the iris promptly disappeared. Healing was normal and rapid. Pupil widely dilated; cornea perfectly clear; patient discharged.

October 17 he re-entered the hospital and was given the usual preparation. General condition and spirits decidedly improved. The right eye differed apparently in no wise from a normal cataractous one after an iridectomy, but owing to the history of the fellow eye unusual precautions were taken. October 18 operation was done with the patient in bed. A 4 per cent. solution of cocain was instilled three times, at intervals of five minutes. Section of two-fifths of limbus, raising small conjunctival flap above, from which was slight hemorrhage. Peripheric capsulotomy done with sharp cystotome; when the capsule was opened a small amount of clear fluid escaped. Speculum removed and the cataract, about two-thirds the size of an average lens, was expressed easily with the fingers. As a few flakes of soft lens matter remained in the pupil, the anterior chamber was gently irrigated with a special glass nozzle pipette, using a small quantity of a warm sterile physiologic salt solution. No further manipulation was required; there was no loss of vitreous or other mishap and even less than the usual traumatism. The patient behaved well and experienced no sensation during the operation. Atropin was instilled and a gauze bandage lightly applied over both eyes. Before closing the eye operated on, attention was called to the fact that the lips of the entire corneal wound were whitish.

After the lapse of twenty-four hours the eye was inspected though the patient had no discomfort. The wound was closed; anterior chamber fully restored; thickened capsule in pupil which was widely dilated; edges of coloboma free, but the entire upper half of the cornea was affected by the appearance of a well-marked typical "striped keratitis;" otherwise no evidences of reaction. At the end of the second day the striated appearance had extended the full width vertically across the cornea. Anterior chamber very deep; tension, —1. There were no subjective symptoms; no ciliary and but slight conjunctival injection; the wound was firmly closed. The bandage was left off and a light dressing was held in place by strips of silk plaster.

October 21, in addition to the striated opacities, the cornea was thinly and diffusely opaque, apparently due to changes deep in the substantia propria or endothelium. Pupil not distinctly seen, but was widely and evenly dilated.

October 27, the eye had remained entirely free from inflammatory reaction and the patient complained only of his lumbago. The general diffuse opacity had gradually increased, but was conspicuous only by focal illumination. The striated opacities seemed less marked and were broken so that a dark branching line about one millimeter wide appeared in the shape of a "Y," with the arms above extending to the extremities of the site of the corneal section and the thinner body reaching below within three millimeters of the limbus. Close inspection with oblique illumination revealed that the dark line did not mean entire transparency. The epithelium was undisturbed; the corneal surface was smooth and glistening. Tension normal; no subjective symptoms. Dionin and hot fomentations were commenced. General condition satisfactory.

November 2, as the eye seemed entirely well but for the corneal opacity, the patient was allowed to leave the hospital, with instructions to continue the dionin and hot applications, and to use atropin to keep the pupil dilated. He has been seen at intervals since, and at the last visit, March 8, the eye remained much the same. The striated opacities were still distinct and crossed irregularly by fine opaque lines, the "Y" appearance being but faintly defined. The deeper and diffuse opacification was less dense to the temporal side. The cornea was very slightly steamy. Vision 2/200. No change in tension, and had it not been for the corneal opacities the healing process could have been recorded as uneventful. Patient's health continued fair, appetite and nutrition good, but stayed in bed a great deal because of "misery in his back."

It is generally known that the use of a solution of bichlorid of mercury for irrigating the anterior chamber, as well as various accidents and complications, may be followed by corneal changes, nor would opacification be unexpected in a patient whose general condition and nutrition were undoubtedly bad. But in my case none of these elements entered into the causation, so far as

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

can be determined. As it was impossible to obtain details from the first operator, I had thought it not unlikely that the opacification had been due to bichlorid, as that antiseptic was being used extensively about this period. Also there might have been some connection between the presence of the opacification and the section having been made far into the corneal tissue. And at this time, ten years before my operation, the patient's health was most excellent.

Had the cornea shown the slightest haziness following the preliminary iridectomy I should not have proceeded to extraction.

In the literature at my command only one or two text-books of ophthalmology mention general opacification following uncomplicated cataract extraction, and attribute it to the use of corrosive sublimate solution. So it seemed worth while to call attention to the subject. Hoping to make my paper of some value, the following questions were addressed to every member of the Section on Ophthalmology of the American Medical Association:

1. Have you had cases of general opacification of the cornea following cataract extraction; if so, how many (or if none) in what number of cataract operations?
2. To what cause or causes do you attribute its occurrence?
3. What appearance or forms did the opacity assume?
4. What part of the cornea seemed to be the seat of the lesion, and what the pathologic change?
5. To what extent did the opacity disappear, and how long before corneal changes ceased?
6. Kindly give separately the ultimate corrected vision in each case.
7. What preventive measures and curative treatment have you found of value?
8. What percentage of your cataract extractions has been followed by "striped keratitis"?
9. Have you ever seen striped keratitis fail to clear up so that the ultimate vision was affected by it; if so, what percentage did not clear completely?
10. Does your experience touch on any notable point outside your answers to the above questions?

To search case records for absolutely accurate replies was a task too laborious to be expected from any one, but I had hoped for a large number of approximate estimates of cataract extractions. This, with the data on corneal opacifications, should throw some light on an apparently obscure subject. However, I can not sufficiently express my appreciation for the generous and courteous responses made and regret that the limited space prevents my using more extensively the very valuable material gathered.

Out of the 227 heard from at this writing, 87 gave either the precise or estimated number of extractions, amounting to 19,821. From the figures given a conservative estimate of extractions by my correspondents would not be less than 50,000, and among these are only 39 cases of general opacification.

Concerning striated keratitis, there were great variations in statements. Sixteen correspondents reporting the exact number of cataract operations (the largest 397) aggregating 1,248 cases, had never seen this condition, while others gave large estimates, ranging from 50 to 100 per cent., depending, one says, on how closely we observe the condition of the cornea. The average of all answers is about 11 per cent. In my limited experience it has been about 3 per cent. and has always disappeared. Eleven reported cases of striped keratitis that affected the ultimate vision. One colleague wrote, "Ribbon keratitis (Elschnig) or zonular keratitis (Salzmann) always heralds general bulbar degenerations," but I had reference to that well-known clinical appearance, commonly noted in case histories in a routine way by "striped keratitis present."

About 45 cases were reported as general opacification, but closer review determined that the process did not involve the entire area of the cornea. Distinct causes enumerated in all of these histories were identical with many of the known causes for the cases of complete opacifications. The pathologic conditions were probably similar, differing only in degree. One operator leaves the bandage on his myopic subjects twice the usual time. Another had frequently seen striped keratitis until he adopted the "open method" of treatment, but none since. Another of large experience states that since he had abandoned attempts at artificial ripening he had not seen a case of striped keratitis. And another advised, in cases of marked arteriosclerosis, to make the section in the limbus with a large conjunctival flap. Two interesting cases of partial opacification have been reported by Dr. Harold Bruns and one by Dr. H. Gradle.[1]

Following is a synopsis of the 39 cases reported of general (complete) opacification of the cornea.

CASE 1.—Doubtful cause, syphilis. Specific treatment did no good.

CASE 2.—Operations, 75. Causes given, senility and poor nutrition, blood count low. Ultimate vision, 5/200.

CASE 3.—Operations, 150. Bichlorid getting into anterior chamber. Cleared up under atropin and alteratives. Vision, 15/50.

CASE 4.—Alcoholism and debility. Cleared up about one-half.

CASE 5.—Accidentally irrigated anterior chamber with bichlorid for saline solution. Ultimate vision, moving objects.

CASE 6.—Operations, 100. "Infection," no treatment; cleared; vision, 20/50.

CASE 7.—Cause doubtful unless incision too far in cornea. Vision, fingers 4 feet.

CASE 8.—Operations, 21. Dislocated lens; general debility. Vision, fingers 2 feet.

CASE 9.—Operations, 50. Section with poor knife. Corneal changes very similar to my case. Vision, fingers at one meter.

CASE 10.—Caused by infection more than a week after operation. Leucocytic infiltration of substantia propria. Opacities permanent.

CASE 11.—No cause. Partly cleared, dionin. Vision, 20/120 after five months.

CASE 12.—In another's practice, due to bichlorid solution.

CASE 13.—Operations, 200. Much lens matter left in anterior chamber produced irritation. Slight opacity only after three months. No treatment.

CASE 14.—Operations, 100. Traumatism and possibly syphilis. Vision P. L.

CASE 15.—Continued hemorrhage from "abnormal retinal vessel."

CASES 16 and 17.—Operations, 80 to 100. Caused by irrigation of anterior chamber (with what not stated), both cleared completely in two weeks, hot applications, atropin and dionin.

CASE 18.—Operator of large experience. Patient in good health, aged 58 years. Perfectly smooth operation, simple extraction, no rational cause discovered. Rapid opacification of entire cornea, apparently in parenchyma. Under long continued subconjunctival injections it cleared up in a measure, but no useful vision was obtained.

CASES 19, 20, 21 and 22.—Operations, 1,000. La grippe, followed on second day after operation. Very feeble patient. No cause known. Debility.

CASE 23.—Operations, 20. Senile debility, age 83 years.

CASE 24.—Operations, 400. Caused by using strong solution (4 per cent.) holocain in place of a 1 per cent. solution. Disap-

1. Ophth. Rec., 1903

peared in four months. Used hot applications, atropin and dionin ointment, 5 to 10 per cent.

CASE 25.—Striped keratitis, involving entire cornea, that never cleared. Patient in good health, age 79 years. No cause known.

CASES 26, 27 and 28.—Operations, 200. All said to be due to "lessened nutrition of cornea;" all cleared practically, he believes, after several months.

CASES 29, 30, 31, 32, 33 and 34.—"Many hundred operations." All due, he thinks, to lack of "constitutional vigor."

CASE 35.—Operations, 50. Caused by extensive (three-fifths of circumference of cornea) section and to action of bichlorid on endothelium. Vision, 20/200.

CASE 36.—Hypermature cataract. Great loss of vitreous. Vision, fingers three feet.

CASE 37.—Operations, 100. Caused by accidental introduction of alcohol into anterior chamber. Vision perception of light ultimately.

CASE 38.—Operations, 100. Cause, severe iridocyclitis. Vision, perception of light. As this is the only case in which the pathology given is based on the microscopic findings, it is a great satisfaction to copy the report in full: "The whole cornea looked like ground glass. There was a deep white change with no disturbance of the superficial epithelium, not the so-called ground glass dots, but a general white opacity. Sections of the eye showed that the endothelial lining was replaced by a mass of dense new connective tissue, possibly one-third as thick as the original cornea. This new tissue, I believe, was the result of the iridocyclitis—masses of organized exudate. The proper substance of the cornea was unchanged, and the epithelium was normal. My colleagues and myself looked on this case as one of general opacification of the cornea. The whole appearance justified the expectation that the microscope would reveal interstitial changes."

CASE 39.—My own.

One operator only out of the twenty-nine reporting cases could include the history of the other eye, also operated on for cataract with useful vision obtained, but lost two years later through infection, and emphasizes the rarity of my case in which the second eye, ten years later, almost paralleled the course of its fellow through its peculiar and unexplainable history of opacification.

CONCLUSIONS.

The deductions that I would make from my study of this subject are that treatment is of but little or no avail, and that there is no indication at present known which enables us to determine beforehand when general opacification of the cornea may follow cataract extraction. But with the warning from such a result in one eye, the cause undetermined, I should favor some method other than extraction for the remaining cataract, and would suggest this as one of the very few conditions where couching may be a justifiable operation.

DISCUSSION.

DR. J. L. THOMPSON, Indianapolis: During the grip epidemic a man of 75 came to me with what looked like a favorable case for operation, and we did have one of the smoothest imaginable, but two days afterward the patient had the grip. There was no tendency to suppuration, but the cornea became entirely opaque, without any pain or anything of the kind, and the operation was a complete failure. I recall another case in a woman who suffered from stomach trouble and who had a very thin cornea. She was operated on and the case went exactly the same way. I also recall two doctors that were in the habit of drinking—taking something to keep the chills off in the morning, and then a little appetizer at noon, and in the evening a nightcap, and about sixteen during the day. One lost an eye. The other was able to write prescriptions afterward.

DR. D. W. GREENE, Dayton, Ohio: I have done over 1,000 operations on the lens in the past twenty-five years, largely in a class of men, veterans of the Civil War, many of whom were broken in health and subject to dissipations and vices of all kinds, more than 90 per cent. being now above 60 years of age, with an average age of 67.72. The number of extractions I have made among these men is large, and I have not seen a total opacity of the cornea result. In private practice I saw one case, ten or twelve years ago. This occurred in a portly German, more than 60 years old, who led a sedentary life, being a tailor, and who was a large consumer of beer. The operation had been free from accidents, and no other complications followed. I am not sure of the strength of bichlorid used, nor whether the section was large enough, and the knife keen and sharp, nor whether much pressure was used in delivering the lens; these seem to be important factors in the evolution of striped keratitis, the type of total opacity which Dr. Hulen has brought to our attention being an exaggeration of this condition.

It seems strange at first glance that total opacity of the cornea is not a more frequent result of extraction of cataract. If striped keratitis consists essentially in wrinkling and other damage to Descemet's membrane, at right angles to the line of incision, from the strong antiseptic solutions that have been used, or from excessive pressure in delivering the lens through an insufficient corneal incision, there are sufficient exciting causes. Not all cataract cases, however, have striped keratitis, and we know that many operators still continue to use strong antiseptic solutions and that the great tendency among operators is toward making too small a corneal incision, for easy delivery of the lens. Experience has satisfied me that this has done more to keep up the number of cases than anything else, except the inordinate pressure in delivery, which is necessary because of it. There is abundant evidence that the condition is not inflammatory but rather a nutritive or circulatory change in the canals of the posterior layers of the cornea. It lasts but a few days and is not painful. These are sufficient exciting causes, in the absence of a known predisposing cause. Permit me to cite the influence which arterial diseases, with or without high blood pressure, is believed to have in the circulation and nutrition of other parts of the eye and to ask why the same conditions may not apply to the circulation and nutrition of this part of the cornea, as are believed to obtain in glaucoma and perhaps in cataract as well.

I now have a case of extraction made two weeks ago, after a preliminary iridectomy, in a woman 67 years old, with B. P. 220 mm. Hg. The other eye had been lost by glaucoma after an extraction and subsequent discission, made by a competent operator. No strong antiseptic solution was used, the section was ample, and expression of the lens was easy in my operation, yet I saw on the third day that striped keratitis was present. An ominous opacity of the cornea still persists. [Note: Since this statement was made the cornea has cleared entirely.]

DR. H. V. WÜRDEMANN, Milwaukee: In over a thousand extractions and expressions I have had total opacity of the cornea follow but once, but within the last two years I have seen eight cases of striped opacity of the cornea, all following expression of the cataract in the capsule; and I think that this is due to the mechanical pressure of the instrument used in expressing the lens. When you do this operation you are stroking the lens through the cornea for anywhere from fifteen to twenty seconds to four or five minutes before the lens comes away. The mechanical injury to the cornea produces this condition of opacity. None of these cases has lasted more than two or three weeks after the extraction and all the patients have recovered with good visual acuity. I have also believed the condition to be due heretofore to strong antiseptics and some years ago to the use of cocain.

DR. G. C. SAVAGE, Nashville: In saying that "in selected conditions couching may be justifiable," of course Dr. Hulen must have meant that if one eye has been operated on and the cornea has become opaque, then couching is justifiable for the other eye. No man can know whether opacity is going to occur or not and couching is so unscientific and so danger-

ous that we all want to avoid it when we can. For a good many years I have made but little pressure on the cornea in expressing the lens and I never did make pressure anything like from two to five minutes, I am sure. But, it occurred to me some time ago to make just enough pressure on the cornea below to make the lens present itself in the incision and then with the cystotome transfix it from behind and lift it out without making any further pressure at all. My purpose was to avoid that occasional annoying occurrence, rupture of the hyaloid membrane and escape of vitreous. If you transfix the lens in this way there is no danger of rupture of the hyaloid membrane and if there is danger of producing corneal opacity by pressure in stroking the cornea this is avoided as well. Now I have had such cases, some getting well just as rapidly as Dr. Würdemann has suggested. I believe that in dionin we have a solvent for lymph. I have seen it disappear rapidly under the effect of dionin when it had failed to disappear before dionin was used and I believe that if we use it immediately after we see the opacity forming the plasma will not become organized and if it does not become organized then permanent opacification is impossible. If we can absorb it before it is converted into connective tissue we prevent opacity. Atropin should be instilled first and then after a proper interval, five or ten minutes, the dionin should be instilled. This can be done with the assurance that in recent cases corneal opacification will disappear under its influence.

MR. E. TREACHER COLLINS, London, Eng.: These cases of opacity of the cornea following operations on the eye, such as extraction of cataract or iridectomy for glaucoma, I have usually regarded as due to damage to the endothelium of Descemet's membrane. We know that this epithelium prevents the infiltration of aqueous humor into the stroma of the cornea and that if it is damaged this filtration occurs and produces opacification of the cornea. The cases in which I have seen most opacity follow after extraction of cataract have been, as Dr. Würdemann has mentioned, cases in which strong antiseptics have been used. In the early days of antiseptics, when I was house surgeon at Moorfield's Hospital, there was one surgeon who was so desirous of making everything antiseptic that he injected into the anterior chamber after extraction of the lens a solution of biniodid of mercury, 1 to 25,000, and in these cases there occurred marked opacity of the cornea. I urged on my senior that the opacity was due to this, but he would not have it. We decided to have a test case; he injected again and that case was the worst case of opacity I ever saw and it remained permanent. This same operator, a very skilful man, and a pioneer in antiseptic surgery, used to like to use a drop of 1 to 20 carbolic acid on his keratome when he made the incision. Some would trickle into the anterior chamber in the vicinity of the wound and in these cases I have frequently seen striped keratitis follow. One or two cases in which I have seen opacity occur have been where the keratome has been used for iridectomy in glaucoma. The operator was so anxious not to put the point into the lens that he pushed it into the back of the cornea instead and the point went through Descemet's membrane into the back of the cornea. I have had an opportunity of examining microscopically an eye in which this has occurred and have lantern slides showing the gap in Descemet's membrane.

DR. WILLIAM ZENTMAYER, Philadelphia: I have had the privilege of seeing a case of this opacification in the practice of Dr. W. F. Norris. The patient was a man of 30, on whom a combined operation had been done on one eye, followed by the cornea becoming opaque; in order to avoid this occurrence in the other eye a preliminary iridectomy was made, which was followed by the same lesion, notwithstanding that a keratome was used and the incision was made at the limbus. Thyroid extract was used without favorable result. This case was particularly interesting because the man subsequently developed phthisis. He died about three years subsequent to the loss of his sight. Whether the corneal condition was due to impaired nutrition at that time or whether he had uveitis as a result of his tuberculosis was not determined. I know of one case of opacity following the use of Dr. White's bichlorid salve after cataract extraction. It was not permanent, but extensive and annoying for a time. It occurred in a case of ordinary senile cataract.

DR. VARD H. HULEN, San Francisco: There are certain definite causes that will produce opacification of the cornea, such, for instance, as the use of strong antiseptics, or overenthusiasm in irrigating the anterior chamber; but there are also cases, as I am satisfied from my experience and the reports I have received, that are predisposed to opacity of the cornea following a perfectly simple, correct cataract extraction. If you have that result in one eye, what are you going to do with the other eye? That is the point to which Dr. Savage referred in mentioning couching. If you have that experience in one eye, with no complication to cause it, then you should not do an extraction in the other eye. If not an extraction, what? Dionin was used early in my case, beginning with a 5 per cent. solution and gradually increasing until the powder was being used and continued a number of weeks along with hot applications. The patient's general condition improved, but the opacification was not affected at all. In regard to striped keratitis, I was struck with the reports I received as to the great variation in statements. Some members of the section who have had much experience reported that they had never seen a case of striped keratitis. That seemed most remarkable to me. Others made the statement that if one looked carefully enough he would find it in 100 per cent. of cases. There is no explanation, it seems to me, for this great variation in statements unless it is failure of careful inspection to bring the matter out.

THE SURGICAL TREATMENT OF ORBITAL COMPLICATIONS IN DISEASE OF THE NASAL ACCESSORY SINUSES.*

ARNOLD KNAPP, M.D.
NEW YORK.

The orbital complication referred to in this paper is the subperiosteal abscess. When disease of the nasal accessory sinuses extends to the orbit, the infection passes through the os planum of the ethmoid or through the floor of the frontal sinus. Two clinical pictures will be present, depending on whether the perforation occurs suddenly or gradually—acute or chronic. In the former, the local symptoms are those of an acute abscess with cullulitis. The orbital manifestations may disappear with intranasal treatment or else the pus works its way to the surface and discharges spontaneously. The acute symptoms may then abate, while the fistula either closes or remains open and a purulent sinus persists, leading into the frontal or ethmoidal cavities. In the second variety there is a greater or less defect in the orbital bony wall of the frontal and ethmoidal sinuses, and with the orbital periosteum a large abscess cavity is formed, causing marked exophthalmos which usually brings the patient to the eye clinic.

In children, the acute perforation takes place through the ethmoidal plate. A curved incision is made along the inner and upper orbital margin, the orbital periosteum and contents are retracted and the opening in the os planum can then be seen. This should be enlarged, and the adjoining cells curetted according to the amount of disease found present.

In the chronic cases with exophthalmos and in the other cases with acute perforation which do not improve on the restoration of intranasal drainage, the method of operating is as follows: It is a distinct advantage to

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

remove the anterior half of the middle turbinate a day or two before the external operation, though this procedure is condemned by some; thus Killian claims that the virulence of the infection is thereby increased. I have never seen any ill effects from this preliminary operation.

Under morphin-ether narcosis, the external excision is made (Fig. 1) along the upper orbital border midway between the eyebrow and the bony orbital margin, then down along the inner wall and the side of the nose to the floor of the orbit. This incision in my opinion is preferable to the incision through the eyebrow (Killian) as it permits external drainage of the frontal sinus if this be found necessary without making another incision. I have not found that packing the nose with gauze or insertion of a postnasal plug is necessary. The

Fig. 1.—Showing line of cutaneous incision and (interrupted line) the resection of bone.

Fig. 2.—Complete detachment of the orbital contents and removal of floor of frontal sinus and of internal orbital wall.

periosteum is divided just at the orbital margin above and in line with the cutaneous incision along the nose. The periosteum is retracted with a rather sharp elevator. After the firm adhesion of the periosteum to the orbital margin is separated, the soft parts with the orbital contents and the lachrymal sac are gently detached and free access is given to the roof and to the inner wall of the orbit (Fig. 2).

The pulley of the superior oblique is carefully detached from the trochlear fossa. It is important not to disturb the relation between the tendinous ring through which the tendon passes and the periosteum to which it is adherent; the periosteum later becomes attached in its normal position by the healing process and interference with the superior oblique muscle is avoided. This important relation can best be preserved by dislodging the pulley from the trochlear fossa by a blunt periosteotome working from behind forward. An examination of one hundred skulls has shown me that in four out of five the pulley is attached to merely a slight depression in the bone; in the remainder a well-developed spine directed straight down and occasionally slightly forward, was present just posterior to this fossa. It is evident that in the cases in which a spine is present the periosteum with the pulley can only be sparingly detached by following the above-described procedure.

The entire floor of the frontal sinus is then easily removed with the chisel and hammer, the diseased mucous membrane is curetted and the bony septa in the frontal sinus are carefully eradicated. A portion of the orbital margin can be removed without causing any deformity if the normal curve be preserved. The nasal process of the superior maxillary, the lachrymal bone and the ethmoidal os planum are then resected, giving broad access to the middle meatus of the nose and to the ethmoidal labyrinth. Work in this region is facilitated by suitable retractors for the orbital soft parts. The

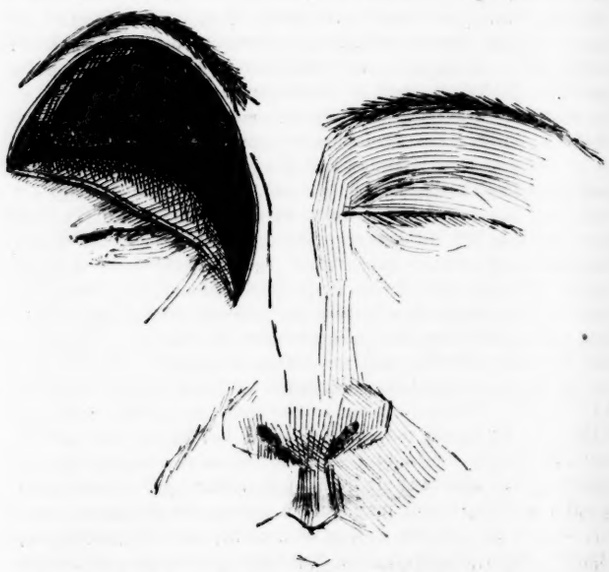

Fig. 3.—Partial resection of anterior wall in the cases in which the sinus extends high up.

two which I use are a curved, shovel-shaped retractor and one shaped like a tongue depressor. The ethmoidal labyrinth is completely removed with the curette, Jansen's forceps or Hartmann's conchotome, remembering that the anterior ethmoidal foramen, which is a constant landmark, indicates the base of the skull and that as one proceeds back the ethmoid becomes broader laterally. The remaining part of the middle turbinate may now be removed and the sphenoidal cavity entered if necessary. The work is facilitated by introducing a finger well into the nose which serves as a guide and prevents some of the blood from running into the nose. The final curetting of the ethmoid is best done with the head low down and when the patient is partly revived. As broad an opening into the nose as possible is made, in addition to removing all disease, to insure proper drainage.

If the frontal sinus extends unusually high up, as it is apt to near the median line, and the upper limit can not be curetted from below, the cutaneous flap with the

eyebrow is forcibly retracted upward, a window is cut in the anterior bony wall similar to the Kuhnt and Killian methods (Fig. 3), leaving a broad bony supraorbital margin covered with periosteum; the purpose of this window is not to remove the greatest part of the anterior bony wall but should be only large enough to treat properly the upper parts of the cavity under direct inspection. Marked subsequent sinking in of the forehead can thus be prevented. The cutaneous wound is not sutured, the soft parts approximate of themselves, and a single wick of gauze is passed from without at the nasal angle into the frontal sinus. There is drainage not only into the nose but externally. Slight packing is introduced through the nose to the ethmoid region, if bleeding demands it; this is removed after twenty-four hours.

The patient occupies a partly upright position in bed. The external wound usually closes primarily. The small opening for the drain is left at the inner orbital angle for from seven to ten days. The nasal cavities are left undisturbed. In some cases diplopia is noted for a few days. This always disappears and all patients are carefully examined for diplopia with a colored glass and a candle, especially in the lower part of the field.

I have performed twenty-two operations according to this method which can be described as a modified combination of the Jansen and Kuhnt methods. In recent years, Killian's method has become deservedly popular. It has seemed to me, however, that the Killian operation has certain objections, at least for this class of cases. Thus it can be simplified if the trochlea be systematically dislodged. The entire floor of the frontal sinus can then be easily removed from below. In the healing process it is also of advantage if the entire bony floor is removed for then the cavity, especially at its outer part, has a better chance to obliterate. In many patients with broad access from below window resection of the anterior bony wall of the frontal sinus is not necessary unless the sinus is an unusually high one. This window does not need to include most of the anterior bony wall, but should be sufficiently large to permit thorough curetting of the uppermost limit of the frontal sinus. This is an improvement cosmetically. Complete removal of the ethmoidal structures is also facilitated when the orbital contents can be well retracted.

The elements of success in operations of this kind depend upon the use of a proper light (either with mirror or electric forehead reflector), the control of hemorrhage and a knowledge of anatomy. These should surely not deter the ophthalmic surgeon from continuing in the development of this important field where the first advances were made by members of our specialty.

26 West Fortieth Street.

DISCUSSION.

DR. E. J. BERNSTEIN, Kalamazoo: One of the important things about the operation is the cosmetic appearance, for, even though we cure our patients, save them much pain, or snatch them from death, if after recovery they are deformed they will be disappointed. Each will think of the deformity always and forget the benefit. Dr. Knapp's incision, it seems to me, produces a little more deformity than that of Killian. The incision that Killian makes directly through the eyebrow, leaves when cure takes place, absolutely no sign of deformity; you can not see the line of incision in two months. Through this incision you can displace the orbital contents just as well as when you make the incision, as I understand Dr. Knapp does. Killian's incision gives you the opportunity of displacing the contents of the orbit with perfect facility and after the wound has been closed by subcuticular sutures, there is absolutely no sign of a scar. In draining the sinus I have observed trouble in the temporal end of the sinus—the trouble appears in the complications that occur in the median. It does not seem to me necessary to displace the trochlea at all. I have been able with perfect facility to remove the whole floor of the sinus and clean out the whole cavity through this opening after displacing the orbital contents. The incision through the eyebrow produces no deformity. The nasal end of the incision leaving the eyebrow abruptly and coming well in the side of the nose, hardly more than a faint line is seen and this can be hidden by glasses.

DR. WILLIAM C. POSEY, Philadelphia: While, of course, the extensive incision described by Dr. Knapp is necessary in some cases of involvement of the frontal and ethmoidal cells, especially when the mucous membrane lining the cavities has been converted into a thick pyogenetic membrane, a smaller incision will suffice in many instances and excellent drainage may be secured without the loss of so much bone. I have always thus far coaptated the flaps of the orbital incision with sutures and have maintained a drainage tube in position, from the orbit into the nose, for at least a week. Dr. Knapp's procedure for the safety of the pulley of the superior oblique is ingenious and I shall be glad to follow his directions. I have found the speculum of Axenfeld, used in the removal of the lachrymal sac, of great service in sinus operations. The essentials of success in the external operations on the sinuses are, in my experience, a thorough knowledge of the anatomy of the orbit and the accessory cavities, ample drainage into the nose from all the affected cells, or, if the mucous membrane be greatly thickened and diseased, its complete removal by Killian's or other similar procedure. In my opinion, those who confine their practice to rhinology alone should be discouraged from attempting to open the sinuses externally, owing to lack of knowledge of the orbit and its contents, and to the danger of injury to the eye or its adnexa, such incisions being within the province of the ophthalmic surgeon alone.

DR. A. E. DAVIS, New York: There is one of the accessory sinuses which Dr. Knapp did not mention at all; that is the antrum of Highmore. I have recently seen an eye lost by an operation in which a dental surgeon tried to drain the antrum from the nose. He said that he had fractured the floor of the orbit by contre-coup, but he admitted that he had put the instrument in rather deeply. The orbit was infected and intense orbital cellulitis occurred with loss of the eye. There was marked choked disc, although perfect drainage from below. This sinus should be taken into consideration in considering these orbital infections. I think Dr. Knapp's incision most excellent and one of the most essential points of the operation. The deformity is practically nothing at all.

DR. ARNOLD KNAPP, New York: I thought it of advantage to have the incision somewhat below the eyebrow because in some cases we want to keep the wound open and we can drain better if the incision is not in the line of the eyebrow. I think that the detachment of the pulley is of great importance in order to get at the ethmoidal and deeper structures properly. This feature, and the complete removal of the inferior wall of the frontal sinus, make this method easier than Killian's operation. The complications, of course, are anomalies in the extent of the frontal sinus. When the frontal sinus extends high up and the apex is not accessible from below, Killian's window resection in the anterior wall must be performed. I limited my paper to this one condition purposely and avoided saying anything about the antrum of Highmore.

Holding Patients.—It is commonly observed that the so-called business getters are not business holders. Soon after beginning practice the writer was told by a practitioner of considerable experience that in ten years a physician in the city would have but few of the patients at the end of the decade who were with him at the beginning of the decade. This is a fact only with the business getters who are not business holders. Patients are held best by the man who is trustworthy. He who is honest with himself and his patients and is truly progressive is most successful.—*Leucocyte.*

SOME CLINICAL ASPECTS OF LENTICULAR ASTIGMATISM.*

EDGAR S. THOMSON, M.D.
NEW YORK.

The subject of astigmatism has for its keynote the astigmatism of the lens. This is not only of interest from a scientific standpoint, but it is also of vital importance in the management of cases. It is not sufficient that we know the total astigmatism of an eye, unless we wish to prescribe glasses largely from the anatomic standpoint. In order to obtain a correct idea of the conditions present in each given case, we must separate the comparatively fixed quantity, the corneal astigmatism, from the fluctuating and uncertain one, the astigmatism of the lens. Leaving aside the differences in the corneal surfaces and the eccentricity of the visual axis, both of which quantities are so small as to be negligible from the clinical standpoint, the two broad facts to be determined are the amount of corneal astigmatism and the amount of lens astigmatism.

The corneal astigmatism, which is congenital in the vast majority of cases, may be determined accurately by the ophthalmometer of Javal and Schiotz. It may be stated in the beginning, however, that we have at present no accurate means of measuring the lens astigmatism, either as regards its quantity or its axis, but must depend on the subtraction of the corneal from the total astigmatism, as obtained by one of several methods.

VARIETIES OF LENS ASTIGMATISM.

Lens astigmatism may be either static or dynamic, and is probably far oftener the latter than the former. It would otherwise be difficult to explain the occurrence of so many cases of corneal astigmatism of low degree (0.5 diopter) accurately compensated by the lens, especially in hyperopic cases with a well-developed ciliary muscle, and it hardly seems logical to attribute the cause of this to static astigmatism when we consider how small the measured change must be. In support of this, we have the clinical fact that low degrees of corneal astigmatism in myopic cases are much less frequently compensated by the lens; that is, they frequently accept cylindric glasses entirely at variance with the ophthalmometric reading, and this we should expect, because the ciliary muscle is relatively weaker, and because accommodation has no effect in increasing the visual acuity in use of the eyes for distance vision.

We are more apt to find this variation in the lens astigmatism the higher the total myopia and the weaker the ciliary muscle. That there exists a primary static astigmatism of the lens can scarcely be doubted, but that it exists unchanged in many instances may be very much doubted. Donders[1] found in his own eye astigmatism produced by the tilting of the lens, and that this can occur must be acknowledged by those who have seen astigmatism produced by a partial luxation of the crystalline lens. Children frequently learn to overcome low degrees of astigmatism by tilting the head, and presumably tilting the lens in relaxation of the zonula during accommodation. It is also a matter of common experience to see a patient with spherical glasses overcome an astigmatism by looking obliquely through the lens. Aside from these exceptional cases, however, which usually have rather pronounced clinical features, dynamic lens astigmatism is, in all probability, most frequently caused by partial contraction of the ciliary muscle in the meridian of least refraction, allowing that meridian of the lens to become, within certain degrees, more convex.

If the tilting of the lens were a frequent cause of dynamic astigmatism, we should expect it to appear fully as frequently in presbyopes as in the young. Exactly the reverse is true. Astigmatism in presbyopia becomes manifest just as certain other errors do, unless, of course, we have a static astigmatism of the lens, and it is doubtful if dynamic astigmatism occurs at all after the age of 50.

Lens tilting argues an even higher individual development of control over the ciliary muscles, inasmuch as the mechanism by which it is produced must be the drawing forward of a certain set of ciliary fibers confined to a very small area. It is doubtful if this highly specialized action of the muscle exists frequently. Indeed, all the cases of lens tilting that have come under my observation have been, I believe, due primarily to the action of gravity in the twisted positions of the head which such patients assume.

Aside from the cases of lens tilting due to partial luxation of the lens, I have never seen a case where lens tilting seemed to occur during the distance test, these cases occurring only during accommodation at the near point.

Compensation by lens tilting must be extremely small, and is undoubtedly less in amount than compensation by partial contraction.

Partial contraction of the ciliary muscle was first pointed out by Dobrowolsky.[2] This view has been accepted by Landolt, Woinow, Pflüger, Mauthner, and others, while it has been opposed by no less distinguished observers than Hess, J. G. Bull, Sulzer, and Tscherning. The question is by no means settled, but it certainly seems as if the advocates of a dynamic lenticular astigmatism had a great deal in their favor, for the clinical facts and the voluntary control of the eye over astigmatism seems difficult to explain by any such fortuitous occurrence as dropping of the lens, tilting of the lens on the axis, or any of the other changes in the lens causing astigmatism, which, while they undoubtedly occur and have been demonstrated, certainly can not be the cause in the majority of cases.

The experiments of Hensen and Voelckers[3] are in the highest degree convincing, as showing that a meridional contraction of the ciliary muscle is possible, whatever may be its action on the shape of the crystalline lens. They found that irritation of the ciliary nerves by an electric current was followed by contraction in only that part of the iris and ciliary muscle supplied by that nerve. They also introduced needles through the sclerotic and cornea, and observed by the tilting forward of the needles which ones were acted on when a certain ciliary nerve was stimulated, proving that the choricid is drawn forward in accommodation. They observed in the same manner changes in the curvature of the lens, by placing the ends of the needles in contact with the anterior and posterior surfaces of the lens. This was demonstrated in living animals—dogs, cats and monkeys—and also on a freshly enucleated human eye. The point of application of the electric current in the animals was near the ophthalmic ganglion.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Accommodation and Refraction, p. 532.

2. Arch. f. Ophth., 1868, xviv, 3, 51.

3. Exper. Untersuchung ueber den Mechanismus der Accommodation, Kiel, 1868; also Arch. f. Ophth., 1873, xix, 1.

CLINICAL DIFFERENTIATION.

From a clinical standpoint, we must distinguish carefully the static and the dynamic astigmatism of the lens. I think all will agree that the latter exists, no matter how it may be produced. It seems impossible otherwise to explain the vast number of persons whose corneal astigmatism is reduced 0.50 or 0.75 diopter, so that, having that amount of corneal astigmatism, no amount of refractive error can be demonstrated either with or without a mydriatic.

As Landolt[4] points out, "It may easily be demonstrated that the eye succeeds with a certain effort in overcoming weak cylindrical glasses. By what mechanism would it be possible to neutralize the inequality of refraction produced by the cylinder if not by the unequal contraction of this ciliary muscle, followed by a corresponding change in the form of the crystalline? This unusual and, for the non-astigmatic eye, unnatural muscular action reveals itself, moreover, by a rather disagreeable sensation, which from its resemblance to the one experienced during fixation of the punctum proximum leaves no doubt as to its origin. . . . The contraction of this muscle, limited to a single meridian, must cause unequal relaxation of the crystalline and make it assume a more convex form in one meridian only." It may easily be demonstrated, by putting a —0.50 cylinder before the eye (which is the utmost that I personally can overcome), that variations in the position of the head have no effect on the ease with which this cylinder can be overcome in the majority of cases, but only in the exceptional cases of "lens tilting" mentioned.

The dynamic astigmatism of the lens could hardly be expected to exceed a fraction of a diopter, and in practice this is found to be the case. The earlier text-books on refraction frequently led one to believe that a very considerable amount of astimatism might be uncovered by the use of atropin, but, as a matter of fact, we do not find this to be invariably the case, and even in those whose accommodation is young and vigorous any more than 0.50 diopter blurs distant vision. In practice, I find myself more and more inclined not to give cylindrical glasses, unless they improve the vision, and even if I have occasion to use a mydriatic and develop what may be called a latent astigmatism I do not by any manner of means feel sure that such a glass can be worn after the effect of the mydriatic has passed off. However, the occurrence of these cases of latent astigmatism is a very strong point in favor of partial contraction of the ciliary muscle.

A dynamic astigmatism of the lens, which persists for a certain length of time, may lead to one of two secondary changes in the eye. The first of these is a greater development of the fibers of the ciliary muscle in the meridian of contraction. There seems no reason to doubt this in the face of the accumulated proof of the muscular development of the whole ciliary body in hyperopic cases (Iwanoff). The second change is in the shape of the lens. A lens in which a dynamic astigmatism persists for a certain length of time gradually becomes fixed in that shape, as the nuclear sclerosis advances. This is shown by those cases of corneal astigmatism of two or more diopters in which there is normal vision with only a fractional cylinder. Even with the aid of a mydriatic it is impossible to develop a greater lens astigmatism. Naturally we only meet with these cases in patients over 30 who have never worn glasses. These cases are, to my mind, a further proof of the existence of partial contraction of the ciliary muscle.

The cases above mentioned occur in astigmatism "with the rule." In astigmatism "against the rule" the dynamic astigmatism does not have the same tendency to become fixed. In presbyopic cases "against the rule" the lens astigmatism commonly disappears.

LATENT ASTIGMATISM.

At times we find cases in the transition stages between these changes; that is, with increased tonicity in the fibers of the ciliary muscle, but no permanent change in the shape of the lens. These cases belong to the class of so-called "latent astigmatism," and if a mydriatic is used a certain amount of lens astigmatism is manifest, though after the mydriatic has ceased its effect the tonicity of the fibers in the meridian of contraction may again compensate for the corneal astigmatism.

FACTORS IN TREATMENT.

In general, then, we have in the treatment of every case to consider the following factors, and, where absolute measurement fails us, to assign as nearly as possible a correct valuation in accordance with our judgment of the individual case: 1. Corneal astigmatism. 2. Lens astigmatism: a, static; b, dynamic. 3. The degree of compensation. 4. The factor in the error which is producing symptoms.

Obviously the last point is the end and aim of our efforts as practical ophthalmologists, and the relief of the irritative symptoms is the only question which greatly interests the patient.

TESTS EMPLOYED.

For determining the above mentioned points there are only two positive tests: 1, the ophthalmometer for the corneal astigmatism; 2, the shadow test for the total astigmatism. It may be urged against the ophthalmometer that the posterior surface of the cornea will modify its reading, but that this modification must be very slight indeed is shown by the well-substantiated assertions of Baker.[5] From a practical standpoint I never consider this factor. The shadow test, taken by itself, gives no idea of the proper proportions of the various factors to be considered, and, while undoubtedly of great value in association with other tests, is of limited value when taken alone. It must always be done with the aid of a mydriatic. Its most enthusiastic advocates lay great stress on the accurate determination (if not correction) of the total refractive error, and this point of view might be the correct one if we were dealing only with the eyes of the young in which the original error is not modified. In practice we find all sorts of modifying circumstances, with the changes in the ciliary muscle and lens above mentioned. In brief, the question must be approached from the standpoint of the physiologist and the pathologist (if one may use the term in this connection) rather than that of the anatomist.

As Hess says in his masterly paper read before this Section last year:[6] "Here" (i. e., under mydriasis) "the optic conditions are so different from the normal that it is impossible to come to a conclusion as to the normal refraction of the patient's eye."

4. Refraction and Accommodation of the Eye, p. 302.

5. Norris and Oliver's System, i, 138.

6. THE JOURNAL A. M. A., July 20, 1907, p. 230.

The subjective tests with the trial lenses I believe to be perhaps the most important in our list, when based on our other measurements, and the technic of applying them is very important. It hardly seems necessary at the present time to go into details on this point, but I may say that the "fogging" method has been generally unsatisfactory in my hands, and I much prefer to test with cylindrical lenses in the axis of the corneal astigmatism, gradually increasing the strength of the lenses and adding only the required spherical lens to bring the visual acuity to the point where finer changes are more noticeable to the patient. I then vary the axis to find any modifications that may exist; if I am unable to find the correction which gives relief, I use a mydriatic and obtain a reading of the total error.

The actual lens prescribed depends on the judgment of the various questions above mentioned, taken in connection with the general muscular constitution (as bearing directly on the constitution of the ciliary muscle), the needs of the individual, and the existence of any local complications—as strabismus, heterophoria, etc., which need not be considered here. I do not underestimate the value of the ophthalmoscope in the treatment of refractive errors, but its bearing in the present question is only to give a close approximation to the total spherical error, which, of course, we must know, and it is of little value in the actual determination of the amount of astigmatism.

To obtain the lens astigmatism, we subtract the corneal astigmatism from the total, as obtained by either of the above mentioned methods. The proper appreciation of the true cause of the lens astigmatism and of the factors producing the visual disturbance will depend not so much on mere figures as on the clinical conditions bearing on the case. To particularize, it is necessary to take up *seriatim* the different forms of astigmatism:

HYPEROPIC ASTIGMATISM.

The majority of cases of hyperopic astigmatism will fall under one of the following general classes:

1. *Low Degrees of Corneal Astigmatism, Completely Compensated by the Lens, Axis 90° or Thereabouts.*

These cases occur at any age, give no symptoms, and accept no cylindrical glasses with or without a mydriatic, and have normal vision with a corneal astigmatism of not more than one diopter, usual axis 90°, symmetrical in the two eyes. They form the largest class of cases. We see them only incidentally, in the course of treatment of other eye conditions—inflammations or presbyopia—and, of course, they require no correction. The compensating astigmatism of the lens is static, whatever it may have been originally. My own feeling is that a large proportion of such cases, perhaps the great majority, begin as dynamic lens astigmatism, and that the efforts of the ciliary muscle are purposeful, and ultimately lead to full correction without the aid of cylindrical glasses.

2. *Higher Degrees of Corneal Astigmatism, with Partial Regular Compensation by the Lens, Axis 90° or Thereabouts.*

Under this heading we have the largest class of cases coming to us for treatment. The lens astigmatism occurs in the same axis—or very nearly the same axis—as the corneal astigmatism, and amounts to between 0.50 and 1 diopter. It is for this reason that we have the arbitrary rule of subtracting 0.50 diopter from the reading of the ophthalmometer in prescribing lenses, a rule which seems unfortunate as leading to a certain amount of misapprehension, though, in fact, our other tests usually give us approximately this result.

These cases, almost without exception, have a diminution of the visual acuity for distance (the amount depending on the degree of astigmatism) with asthenopia. Even small amounts of astigmatism are not properly to be called latent, though the meridional contraction occurs only at intervals when the patient is looking at the test card, and in most instances need not occur at all if the cylinders are carefully tried. By subtracting the total astigmatism (manifest with the trial lenses) from the corneal we have the lens astigmatism, and whether this be static or dynamic will depend on the severity of the asthenopia, the age of the patient, the length of time that the eyes have gone uncorrected, and the general muscular constitution of the individual.

After the age of 35 the compensating astigmatism is almost invariably static, and we may see even high degrees of compensation at this time; that is, 1.50 to 2 diopters, where glasses have never been worn and where the muscles have been allowed to develop gradually without undue forcing. In such cases, even under the influence of a mydriatic, the manifest astigmatism is not increased. Before 35, or thereabouts, the judgment of the character of the lens astigmatism is more difficult, and I have come to depend to a great extent on the finding of tender spots over the ciliary region, frequently in the meridian of contraction, when a dynamic astigmatism exists. If I find these tender spots, I suspect the astigmatism to be latent or dynamic, and I prescribe a mydriatic, both for accuracy in obtaining the test and for its physiologic action on the contracted fibers of the ciliary muscle. In most instances, the astigmatism will be found to be dynamic and needing partial or total correction, depending on the clinical features of the particular case, i. e., the amount of use of the eyes, the length of time since glasses have been worn, the age of the patient, and the general muscular constitution. One should be very careful in this connection not to overcorrect, for overcorrection is productive of much more irritation than undercorrection. Where no irritation of the ciliary muscle can be discovered, it seems unnecessary to use a mydriatic, and in practice I do not find that I am led into error through this line of procedure.

3. *Low Degrees of Corneal Astigmatism with Irregular Compensation by the Lens.*

This class is composed almost entirely of cases in which the corneal astigmatism is less than 0.75 diopter. It occurs most frequently in cases where the corneal astigmatism is not symmetrical; that is, one cornea may have a 0.50 diopter of astigmatism, the other none. In such cases the axis of the total manifest astigmatism represents a mean between the cornea and the lens, whose astigmatism, either from its original static condition or through faulty accommodative efforts, lies in an entirely different axis from the corneal. Such cases are much prone to vary. The astigmatism will appear and disappear, the axes will change from time to time, even where we use a mydriatic and endeavor to put them on more permanent bases.

In these cases, as in the former, I do not use a mydriatic, unless I have evidence of muscular cramp, as shown by tender spots over the ciliary muscle. I prefer to correct the manifest astigmatism after not less

than two careful tests with the trial lenses. Unless there is a definite indication that the distance vision is accomplished through irritating accommodative effort, I prescribe the glasses only for the near work, and I often find that under this form of treatment the ciliary muscle adjusts itself, compensation is regained, and the glasses may be laid aside.

In this class of cases we frequently see the results of coordinated effort in the ciliary muscles of the two eyes; that is, where we have no corneal astigmatism in one eye and 0.50 diopter, axis 90° in the other eye, the same meridians will contract to such a degree that our final astigmatism will read axis 180° in each eye—say 0.50 diopter, axis 180°, in one eye, and 1 diopter, axis 180°, in the other eye, with 0.50 diopter or corneal astigmatism, axis 90°. In other words, the compensation in the eye with the 0.50 diopter of corneal astigmatism has overshot the mark and given us an excessive lens astigmatism.

4. *Corneal Astigmatism with the Axis at 180° or Thereabouts.*

In this class of cases, as is well known, the symptoms are very much more severe, compensation is much less apt to occur, and the lens astigmatism is frequently in excess of the corneal. Here we frequently find the lens astigmatism to be static, and the correction must be worn constantly. The reason for the increased difficulty of compensation in this class of cases over the preceding class is naturally to be looked for in a greater normal tonicity of certain fibers of the ciliary muscle over certain others, but so far we have no anatomic investigations to help us out on this point.

5. *Cases of Simple Lens Astigmatism.*

In these cases the cornea shows no astigmatism, and the astigmatism is confined to the lens. It may be as high as a diopter, is accompanied by severe symptoms, and occurs most frequently below the presbyopic age. It is very desirable to use mydriasis in these cases, where even a small amount of muscular tenderness exists, as there is every evidence that the lens astigmatism is most frequently due to faulty ciliary contraction, and that if we keep our correcting lens a little under the full dynamic astigmatism with suitable management of the work done by the ciliary muscle, the astigmatism will ultimately disappear.

MYOPIC ASTIGMATISM.

In myopic astigmatism, we have, in general, a weaker ciliary muscle, and the compensating lens astigmatism is much less purposeful in its character than in hyperopic cases, as we should expect. While in the nature of the case there can be no constant correction of the astigmatism by the ciliary muscle, still in low degrees, unaccompanied by spherical error, we commonly find an attempt at correction or a contraction of the meridional fibers of the ciliary muscle, produced largely by certain habits in reading.

It must be remembered that within the far point of the meridian of greatest refraction (the most myopic), the only way the astigmatism can be reduced by the ciliary muscle is by correction in the opposite meridian, making both meridians myopic in the same degree, if the astigmatism is not too high; or reducing the astigmatism in the same way, if it is too great to be corrected entirely. We have, then, the same source of irritation as in hyperopic cases, but with a relatively weaker ciliary muscle, whose weakness depends on the amount of spherical myopia, etc. It is for this reason that we so frequently find severe asthenopic symptoms in myopic astigmatism, and that such cases so frequently simulate simple myopia in the distance test. Low degrees will almost always accept spherical lenses for distance, if the same be added until both meridians are corrected, which, of course, leaves one meridian overcorrected. For this reason, I always correct the astigmatism before I add the full spherical lens, and I find very few cases of plain spherical myopia, even where the error is as high as 10 diopters.

Myopic astigmatism occurs in these general classes:

A. *Corneal Astigmatism, with Partial Regular Compensation by the Lens at the Near Point, Axis* 180° *or Therabouts.*

These cases have always marked diminution of distance vision with marked asthenopia for the near point on account of the meridional contraction of the ciliary muscle, as well as other factors, which we need not consider here. Low degrees may simulate a simple myopia—a patient may fail to notice an improvement in reading with cylindrical glasses—and, yet, they require full correction of the astigmatism, both far and near, if the ciliary muscle is to obtain its greatest power, and if the asthenopia is to be relieved entirely. On account of the difference in the constitution of the ciliary muscle and the fact that the dynamic astigmatism occurs only intermittently, compensation, as in hyperopic cases, does not occur, and full correction should be worn constantly.

If there is difficulty in inducing the patient to accept the cylindrical glasses called for by the corneal astigmatism, minus a certain amount for the lens (0.25 to 0.50 diopter), or if tenderness exists in the ciliary region, a mydriatic should be used, and the total static astigmatism be determined. It should never be forgotten that low degrees of this class may be due to overcontraction of the ciliary muscle in hyperopic astigmatism, simple or compound, but these cases have usually marked symptoms, and, moreover, are rather rare, errors of diagnosis in this connection being generally due to faulty technic with the trial case. The clock dial is of considerable value in the testing of these cases, for the lens astigmatism is apt to assume its static amount in the distance test, undisturbed by irregular ciliary contractions. It must be remembered, however, that where the eyes have been used without glasses for near work, especially in low degrees of spherical error, and where the muscular constitution is good, there may be some modification of the astigmatism at the distance, and we should not pay too much attention to any single test, but rather give weight to the preponderance of evidence in determining the full amount of astigmatism.

B. *Low Degrees of Corneal Astigmatism, with Irregular Modification by the Lens.*

These form a very large class, perhaps as large as the preceding. They show great variations in axes and amounts from the corneal astigmatism, which is usually "off axis," and not symmetrical in the two eyes. The principles that have already been discussed in the two previous classes of cases apply with equal force here, and it should especially be borne in mind that the lens astigmatism is so much less purposeful than in corresponding cases of hypermetropic astigmatism that the corneal reading, while important, is very little guide to the total astigmatism. I always try cylinders in the axis of the corneal astigmatism first, but if the indications are that the case belongs to the class under dis-

cussion, I do not hunt for the proper axis with the test lenses, but prefer to proceed at once to the clock dial test. This is apt to be of value, as dynamic astigmatism plays a relatively small part in such cases in far sight, and determination of the full static error is important.

C. *Lens Astigmatism Pure and Simple.*

In this class there is no corneal astigmatism, and the astigmatism is located entirely in the lens. It rarely exceeds 1 diopter, is static in character, has the same characteristics, and requires the same treatment as in the preceding class. It is very doubtful if a dynamic myopic astigmatism ever develops from a hypermetropic case, such changes being usually due to lengthening of the eyeball.

MIXED ASTIGMATISM.

These cases practically all belong to one class. The corneal astigmatism is high and "with the rule," in the vast majority of cases; in fact, mixed astigmatism "against the rule" has been with me one of the greatest of rarities. The distance vision is relatively good, when we consider the amount of the astigmatism, but asthenopia is severe. No complete lens compensation is possible, but almost invariably severe cramps of the fibers in the hypermetropic meridian exist, and are not at all readily overcome by any amount of care in testing with the trial lenses. Variations in the axis of the lens astigmatism from the corneal are uncommon, and when they do exist are of low degree, usually not more than 10° or 15°, and frequently less. Almost invariably we find a reduction of the hypermetropic meridian which is dynamic in character, and to my mind the only proper way to deal with such cases is to use a mydriatic, determine the full amount of astigmatism, and have the glasses put on before the effect of the mydriatic has passed off. We have here a condition of the ciliary muscle which may be considered a pathologic one, and the mydriatic is necessary, as much for a restoration of the fibers to the normal as it is for diagnostic purposes. Of course, this applies only to cases in which glasses have not been worn. Where the ciliary muscle is in better condition, it is frequently possible, by care in the technic of the trial case, to ascertain the astigmatism without a mydriatic. Where the full correction has been prescribed with the assistance of a mydriatic, the case should always be studied subsequently and the action of the ciliary muscle noted, and any irregularity in the focus met by an appropriate change of lens.

19 East Forty-fourth Street.

DISCUSSION.

DR. G. C. SAVAGE, Nashville: I do not deny that there is such a thing as lenticular astigmatism; I do deny that there is any such thing as partial contraction of the ciliary muscle. If there is a lenticular astigmatism, what brings it about, and if it is due to partial contraction of the ciliary muscle, why is it that atropin will not suspend it? Bowman's muscle has been forgotten. It is supplied by nerve fibers, as every muscle is, but not by the third-nerve fibers. Bowman's muscle fibers run meridionally and they must be there for a purpose. I believe that Bowman's muscle is supplied by the cervical sympathetic. Under the guiding influence of some faculty of the mind this muscle does the duty for which it was made, and if Bowman's muscle does anything at all it is the tilting of the lens. What will that do? Now if I have a +3.00 lens in my hand and tilt it on the horizontal axis 45 degrees the focus for rays in the horizontal plane will be, say, 13, and for those in the vertical plane 6½ inches. Now we have such power of tilting the lens of the eye but not through so great an arc. This tilting is done by the proper fibers of Bowman's muscle, and for the purpose of correcting, in part or wholly, the corneal astigmatism. In my own case I suffered when coming up to middle life and nothing conquered my astigmatism except time. The first cylindrical lens given me was plus 0.60 D. and atropin developed no more. A few years later I had to have 0.75 D. and later a 1.00, 1.25, 1.50 D. and now 2.50 D. Eighteen years ago my corneas were measured for the first time with the ophthalmometer and I had 2.50 D. of astigmatism. Bowman's muscle also serves to adjust the lens in the new-born child. If its plane is not at right angles to the visual axis the muscle fibers contract in one part or another to straighten the lens. The purpose of that muscle is to prevent lenticular astigmatism, when there is no corneal astigmatism, as well as to neutralize an existing corneal astigmatism.

DR. LUCIEN HOWE, Buffalo: We may recognize lenticular astigmatism by means of the entoptic images, first described by Purkinje. These were first shown to me by Tscherning with his ophthalmophacometer. That is a laboratory instrument, but it can be made useful clinically by slight alterations. Thus we can take out the prism from the ordinary Javal-Schiötz ophthalmometer by unscrewing the projection in front of the disc and lifting out from the tube the part which holds the prisms. That converts the ophthalmometer into a telescope like the ophthalmophacometer. If we also attach a small electric light immediately below the axis of the tube, on looking through the telescope at the eye we see two reflections of this light. One of these reflections, large and distinct, is of course from the anterior surface of the cornea; the other reflection, small but bright, is from the posterior surface of the lens. If we revolve the tube of the telescope in the usual way, then, as the small electric light revolves, also, the reflection from that light which comes from the posterior surface of the lens describes a distinct circle around the reflection of the light from the cornea, in all cases in which the axis of the lens is practically the same as the axis of the telescope, that is to say, in all cases in which there is no tipping of the lens with the consequent astigmatism. If the lens is tipped forward or sidewise, however, then, when the tube of the telescope with the electric light is revolved in the usual way, the reflection of the light which comes from the posterior surface of the lens does not describe a circle around the reflection from the cornea, but it does describe an ellipse. When the lens is tipped forward, the long diameter of that ellipse is horizontal; and when the lens is tipped sidewise the long diameter of the ellipse is vertical. In dynamic astigmatism due to partial contraction of the ciliary muscle, the iris may dilate irregularly by ordinary doses of atropin, but this can be seen more frequently if we use about 0.00001 gram. This should be applied in the little discs. The pupil then may dilate as an ellipse, indicating unequal contraction.

DR. WALTER L. PYLE, Philadelphia: No better evidence of the necessity of using cycloplegics in the examination of the refraction of the eye can be offered than the facts set forth by Dr. Thomson and the subsequent speakers. There is no doubt in my mind of the frequency of partial contraction of the ciliary muscle, and in cases of long standing it is perhaps not possible to produce full cyclopegia at the first examination for refraction. By constant use of the initial optical correction, a gradual unfolding and relaxation of the spasm ensues, and only after several repeated corrections of refraction, under cycloplegia, possibly extending over several years, may the full static astigmatism be determined and corrected. These facts explain in part the great divergence of opinion relative to the efficiency of the different cycloplegics. I have frequently detected a greater amount of ametropia at a second refraction under homatropin and cocain than at the initial examination under the stronger cycloplegics, such as atropin and duboisin. The great practical lesson from these observations is the necessity of periodical examinations of refraction and changes of lenses whenever indicated by recurrence of local or reflex asthenopic symptoms or evidence of refractive changes. It should be remembered that when such changes occur they may give rise to symptoms quite as annoying as the initial discomfort that led the patient to seek ophthalmic treatment. It is a well established fact that the compensatory ciliary efforts in the involuntary attempts to correct astigmatism are far more

provocative of the manifold symptoms included under the general term "eyestrain" than are the similar spastic conditions in simple hyperopia.

DR. A. L. DEDIGER, Chicago: Noting particularly the difference in correcting errors of refraction without and with a mydriatic, and the changes that frequently take place in the amount of correction and also the changes in the axis of the cylinder where there is astigmatism, I decided some years ago to study some of these cases that vary considerably. A change of the axis, even of 5 degrees from the vertical or horizontal to the oblique, has made a remarkable difference in the relief given to the patient. A man, aged 43, vision before atropin was used, 20/15 (above normal), accepted minus 0.25 in each eye with no difference in vision. He had 6 degrees of right hyperphoria which I corrected by an operation on the superior muscles of the right eye. Using atropin for three days there was vision in both eyes of 20/30; with the right eye $+0.25 \frown +0.50$ vision = 20/30. I prescribed full correction and he wore glasses with comfort until Aug. 27, 1907, when he had recurrent headaches. Under atropin vision was found to be 20/30 and the right accepted $+0.75 \frown +0.50$ C., axis 45, vision = 20/20; left eye, $+0.50 \frown +0.50$ C., axis 120, vision = 20/20. These were worn until April, 1908, when the patient returned again, complaining of similar attacks. Atropin was used again and this time vision reduced to 20/40. Right eye accepted $+0.25 \frown +0.75$ C., axis 45, vision = 20/20; left eye $+1 \frown +1$ C., axis 120, vision = 20/20. There was more astigmatism and more hyperopia in both eyes. One of the most important things is to give full correction after the age of 30, especially for close work.

DR. A. R. BAKER, Cleveland: I do not think that these repeated statements, "I do not use mydriatics," should be endorsed. You might as well try to fit a man with a suit of clothes while he is running down the street as to try to fit glasses without a mydriatic.

DR. E. C. ELLETT, Memphis, Tenn.: I recently saw a case in which rapid changes took place in the astigmatism. Mr. P., a preacher, aged 39, a hard worker and a man who took little exercise, was seen in March, 1908, complaining of recent poor vision. He saw 20/60 in each eye, unimproved by glasses, and read J. xii with O. D., and J. vi with O. S. The nerves showed distinctly veiled edges, but no measurable swelling, no hemorrhages, no exudation. The ophthalmometer showed plus 0.50 D., regular astigmatism with the rule. The fields were normal. He complained of indigestion and constipation. His tongue was brown and furred, his liver large and tender, the spleen slightly enlarged and the other organs normal. The urine showed marked indicanuria. He slept poorly, was inclined to be moody and depressed, and his general condition was poor. I am indebted to Dr. Buford for the notes as to his general condition. In less than one month his vision was normal, with glasses, after treatment by massage, diet, washing the stomach, high enemata and plenty of water internally. Successive tests of the refraction showed:

March 30: O. D. + 1 cyl. ax. 120°. O. S. + 1.50 cyl. ax. 180.
April 1: O. D. + 1.50 cyl ax 130°. O. S. + 1.50 cyl. ax. 180.
April 3: O. D. + 2.50 cyl. ax. 125°. O. S. + .50 cyl. ax. 180.
April 17: O. D. + .75 cyl. ax. 90°. O. S. + .50 sph.

All these tests were without a mydriatic. When last examined, on April 17, the correction indicated gave 20/20 full in the right and partly in the left, and J. i in each eye. The nerves were not yet perfectly clear.

DR. A. E. DAVIS, New York: I do not believe that lenticular astigmatism is due to partial contraction of the ciliary muscle. I do not see why the ciliary muscle should have a selective action in one set of cases, in corneal astigmatism with the rule, for instance, to neutralize part of the corneal astigmatism; and yet in another set of cases, in corneal astigmatism against the rule, to increase the corneal astigmatism, as we know to be the case from actual experience. I consider that Dr. Thomson makes one error in regard to the arbitrary subtraction of 0.50 D. from the reading of the ophthalmometer in astigmatism with the rule, and in the addition of 0.50 D. in astigmatism against the rule. The arbitrary addition or subtraction of a certain amount, say 0.50 D., should not be practiced; but after the ophthalmometric reading is made, subjective and objective tests should be made, guided by the ophthalmometric reading; and the difference between the glass accepted by the patient and the glass indicated by the ophthalmometric reading is the amount that should be subtracted or added, as the case may be. This difference may be 0.25 D., 0.50 D. (as is usually the case), 0.75 D., or even 1 D.; and in astigmatism with the rule it is subtracted from the amount indicated by the ophthalmometer, while in astigmatism against the rule it is added. Now this very difference in the corneal astigmatism as measured by the ophthalmometer and the total astigmatism as represented by the cylindrical glass accepted is supposed to be due to the lenticular astigmatism, which lenticular astigmatism Dr. Thomson thinks to be due to unequal and selective action of the ciliary muscle. But this I do not believe to be the case, because, if we assume the lens to be tilted slightly on its vertical axis either to the right or the left, we can easily understand how it neutralizes part of the corneal astigmatism when it is with the rule, and how it adds to it when it is against the rule. According to the extent of the tilting it may neutralize 0.25 D., 0.50 D., 0.75 D., or even 1 D. of the corneal astigmatism, as above mentioned, but this must be found out by actual tests and can not be arbitrarily added or subtracted. In my experience this is the true explanation of lenticular astigmatism as opposed to Dr. Thomson's explanation, as he considers it due to unequal contraction of the ciliary muscle. I am of the same opinion in this regard as Hess and Bull, both of whom believe that lenticular astigmatism is accounted for by the tilting or slight displacement of the lens.

I advocate testing for glasses, in the majority of cases, without the use of cycloplegics. I was taught to use atropin or some other cycloplegic in every patient under forty years of age, but I have come to abandon their use almost altogether since the introduction of the ophthalmometer. In some cases it may be necessary to use them (as in spasm of accommodation or in children under ten years of age), and then I use the powerful cycloplegics, and do not trifle with doubtful ones, such as homatropin.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: As ophthalmologists we deserve severe criticism for using the terms "mydriatics" and "cycloplegics" synonymously. A cycloplegic is always a mydriatic but a mydriatic is not always a cycloplegic. To be certain that we have determined the static refraction of an eye requires cycloplegia, and without cycloplegia results are apt to be contradictory. The correction of the full static refraction is seldom borne comfortably by the patient, but a knowledge of the full static refraction is necessary in order to estimate properly the correction to be given. Occupation, temperament, and the physical condition of the patient will play an important part in arriving at conclusions as to the amount of the static refraction to be corrected.

DR. EDGAR S. THOMSON, New York City: I do not ignore the static astigmatism of the lens which to my mind accounts for some of the differences between astigmatism with the rule and against the rule. Further than that I think we have not data enough to decide that question. To my mind it is not a sweeping question as to whether we shall use cycloplegics or not. I do not hesitate to use them when necessary; in fact I always use them when I consider it necessary; but the point I make is that we must study the condition of the ciliary muscle. Is it compensating? Is it of normal tone or is it in a condition of cramp? If in a condition of cramp, we shall find local tenderness. I do not think that the matter can be put on the ground that no good work can be done without a cycloplegic or no good work with it. I am still unconvinced by Dr. Savage's arguments, but I admit that we have no scientific data and it seems hardly worth while to discuss theories. To my mind the important point is this, that we do not find high degrees of compensating astigmatism in presbyopes and if compensation were due to tilting of the lens we should expect it to appear as frequently in presbyopes as in the young. I believe that the gradual failure of compensation, in such cases as Dr. Savage has cited, is due to advancing nuclear sclerosis and is an indication in favor of the theory of partial contraction.

A STUDY OF ONE HUNDRED REFRACTION CASES IN INDIANS FRESH FROM THE PLAINS.*

CLARENCE PORTER JONES, M.D.
NEWPORT NEWS, VA.

Having had the good fortune to be able to study the refractive condition of the eyes in aborigines, and finding no literature whatever on the subject, I deem it not inappropriate to present a brief treatise on this subject.

The cases studied are confined wholly to pupils at the Hampton (Va.) Normal and Agricultural Institute, a school for negroes and Indians. This institution not being under government control, but, on the contrary, being a purely philanthropic enterprise, kindness, sympathy and individual application makes the stubbornness and distrust so inherent in the Indian melt away. The result is that he soon becomes an ideal student and is trained successfully to enter the realm of good citizenship.

Admissions to the school are made each month in the twelve, and several departments of instruction continue throughout the summer. This series of 100 cases covers exactly 289 admissions, the last being Nov. 24, 1907, four months before the compilation of the statistics. Therefore, I speak accurately when I state that the percentage having refractive errors necessitating the wearing of glasses to improve vision and to relieve symptoms of eyestrain is 34.6 per cent. The ages are from 14 to 22; Males, 127, in this series 44 cases, or about 35 per cent. Females, 162, in this series 56 cases, or about 34 per cent.

On admission a careful test of vision is made, and should it be below 20/20 in each eye, or should the usual symptoms of eyestrain develop subsequently, a thorough refractive test is made. In making this test I made careful and systematic use of the ophthalmometer, ophthalmoscope, retinoscope, phorometer and test lenses, employing a cycloplegic in every case. In these 100 cases—200 eyes—the refractive varieties found were as follows: Hyperopia, 38 eyes; simple hyperopic astigmatism, 26; compound hyperopic astigmatism, 60; myopia, 13 eyes; simple myopic astigmatism, 15; compound myopic astigmatism, 32; mixed astigmatism, 16.

The axis of hyperopic astigmatism was 90 degrees in 69 eyes, 180 degrees in 5, 45 or 135 degrees in 5, nearer vertical than horizontal in 13, and nearer horizontal than vertical in 6.

The myopic axis was 180 degrees in 38 eyes, 90 degrees in 4, 45 or 135 degrees in 4, nearer vertical than horizontal in 4, and nearer horizontal than vertical in 15.

Twenty states and territories are represented in the 289 admissions, 39 tribes, 26 in the series.

There are 3 cases of heterophoria amounting to as much as 2 degrees, no case being treated other than correcting the refractive error. No strabismus.

A marked tolerance for cycloplegics exists in the Indian. Scopolamin is not effective, being practically worthless. Homatropin 1/25 grain in each eye, applied by means of gelatin discs, is usually reliable; this dose was repeated in thirty minutes in about 10 per cent. of the cases. Atropin was necessary in 3 cases. A less than 2 per cent. solution of the latter was ineffective; also the strong solution of atropin was found necessary when its effect was desired in treating eye injuries of Indians occurring in the school work shops. In the series herewith charted, when no cycloplegic is mentioned, let it be understood that homatropin hydrobromate was used.

Fifty-one, or 17.65 per cent. of the whole number, had trachoma on entrance—16 cases in this series; the remaining 35 had normal vision. All trachoma patients are treated surgically, being promptly rolled by Knapp's forceps; and active after-treatment. In the 16 cases mentioned in the refractive series, the test was not made till the acute symptoms had subsided and the corneæ became clear. The care exercised by officers, physicians and nurses with these patients has prevented the spread of the disease at the institution.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

TABLE OF ONE HUNDRED REFRACTIONS IN INDIANS.

Case number.	Vision Before Cycloplegia.	Vision During Cycloplegia.	Results of Examination, etc.	Lenses Accepted for Use. Spherical.	Lenses Accepted for Use. Cylindrical.	Tribe.	Remarks.
1.	20/70	20/40	20/20 w. +.75s. ⊇ +.50c. ax.90	+.50	Same.	Shawnee.	
	20/50	20/40	20/20 w. +.75s. ⊃ +.50c. ax.90	+.50	Same.		
2.	20/150	20/100	20/50 w. +.50c. ax.90 ⊃ — .75 ax.180	Same.	.....	Cherokee.	Scopolamin failed to produce cycloplegia; homatropin was successful.
	20/150	20/100	20/50 w. +.75c. ax.90 ⊃ —2.00c. ax.180	Same.			
3.	20/100	20/40	20/20 w. +.50s. ⊇ +.50c. ax.90	Same.	.....	Oneida.	
	20/100	20/30	20/20 w. +.50s. ⊇ +.25c. ax.90	Same.			
4.	20/30	20/40	20/20 w. +.50c. at 90	Same.	.....	Chippewa	
	20/30	20/30	20/20 w. +.25s. ⊃ +.50c. ax.90	Same.			
5.	20/70	20/150	20/50 w. +.75s	Same.	.....	Sioux	
	20/70	20/150	20/50 w. +.75s	Same.			
6.	20/50	20/70	20/20 w. +.25s. ⊃ +.65c. ax.90	Same.	.....	Onondaga	
	20/200	20/100	20/70 w. +.62c. ax.180	Same.			
7.	20/20	20/20	20/20 w. + .25c. ax.90	Same.	.....	Omaha	Atropin 4 % sol., 5 instillations necessary to produce cycloplegia, scopolamin and homatropin having previously failed.
	20/100	20/200	20/20 w. +1.75c. ax.90 ⊃ —.50c. ax.180	Same.			
8.	20/30	20/30	20/20 w. +.50c. ax.90	Same.	.....	Seneca	Scopolamin failed to produce cycloplegia; atropin 2 % sol., 3 instillations necessary for success.
	20/30	20/50	20/30 w. +.50c. ax.90 ⊃ —1.00c. ax.180	Same.			
9.	20/200	20/200	20/20 w. +.75s. ⊃ +.25c. ax.180	Same.	.....	Chippewa	
	20/70	20/100	20/20 w. +.75s. ⊃ +.25c. ax. 90	Same.			
10.	20/30	20/25	20/20 w. +.25s. ⊃ +.25c. ax.90	Same.	.....	Oneida.	
	20/30	20/25	20/20 w. +.25s. ⊃ +.50c. ax.90	Same.			
11.	20/50	20/50	20/20 w. —.50s. ⊃ —.50c. ax.180	Same.	.....	Ponca	
	20/50	20/50	20/20 w. —.50s	Same.			

Case number.	Vision Before Cycloplegia.	Vision During Cycloplegia.	Results of Examination, etc.	Lenses Accepted for Use. Spherical.	Lenses Accepted for Use. Cylindrical.	Tribe.	Remarks.
12.	20/100	8/200	20/40 w. +1.50s. ⊇ +1.25c. ax.100	+.75	Same.	Chippewa	
	20/100	8/200	20/40 w. +1.50s. ⊃ +1.25c. ax. 80	+.75	Same.		
13.	20/40	20/150	20/20 w. +1.25s	Same.	.....	Chippewa	
	20/40	20/150	20/20 w. +1.50s	Same.			
14.	20/30	20/40	20/20 w. +.50s	Same.	.....	Seneca	
	20/30	20/40	20/20 w. +.50s	Same.			
15.	15/200	15/200	20/100 w. —1.75s. ⊃ —.25c ax. 180	Same.	.....	Navajo	
	20/30	20/35	20/20 w. + .50s	Same.			
16.	20/40	20/40	20/30 w. —1.12s	Same.	.....	Shawnee	
	20/40	20/45	20/30 w. — .50s. ⊃ —.50c. ax.135	Same.			
17.	20/30	20/50	20/20 w. +1.00s. ⊇ +.50c. ax.90	+.75	Same.	Seneca	
	20/30	20/50	20/20 w. +1.00s. ⊃ +.50c. ax.90	+.75	Same.		
18.	20/30	20/40	20/20 w. +.75s	Same.	.....	Oneida	
	20/30	20/40	20/20 w. +.75s	Same.			
19.	20/30	20/30	20/20 w. +1.00s	Same.	.....	Chippewa	
	20/30	20/30	20/20 w. +1.00s	Same.			
20.	20/40	20/45	20/20 w. +.50s. ⊇ +.50c. ax.90	Same.	.....	Oneida	
	20/40	20/45	20/20 w. +.50s. ⊃ +.50c. ax.90	Same.			
21.	20/200	20/200	20/20 w. —2.50s. ⊃ —25c. ax.180	Same.	.....	Assinaboine	
	20/200	20/200	20/20 w. —3.00s	Same.			
22.	20/100	20/200	20/30 w. +1.12s. ⊇ +.25c. ax.180	Same.	.....	Chippewa	
	20/100	20/200	20/20 w. +1.12s. ⊃ +.25c. ax. 90	Same.			
23.	20/70	20/70	20/20 w. —.25s. ⊃ —.75c. ax.180	Same.	.....	Seneca	
	20/70	20/70	20/20 w. —.25s ⊇ —.75c. ax.180	Same.			
24.	20/30	20/40	20/20 w. —.62s. ⊇ —.50c. ax.180	Same.	.....	Oneida	
	20/30	20/40	20/20 w. —.25s. ⊃ —.50c. ax.180	Same.			
25.	20/30	20/70	20/20 w. +1.00s. ⊇ +.75c. ax.90	Same.	.....	Winnebago.	Trachoma: Lids rolled twice in one year, blue stick and bichlorid 1 to 500 ointment used alternately for period of 18 months. Refractive test made 20 months after entrance.
	20/30	20/50	20/20 w. + .75s. ⊃ +.50c. ax.90	Same.			
26.	20/150	6/200	20/40 w. +1.25c. ax.90 ⊃ —1.00c. ax.180	Same.	.....	Pottawattomie.	Trachoma: Lids rolled and blue stick used once or twice a day for 3 months before refractive test.
	20/50	20/70	20/20 w. + .50s. ⊃ +.75c. ax.90	Same.			
27.	20/70	20/100	20/30 w. +1.00c. ax.105 ⊇ —1.50c. ax.15	Same.	.....	Ponca	Trachoma: Lids rolled and bichlorid 1 to 500 ointment used daily for 5 months before refractive test.
	20/50	20/70	20/30 w. +1.50c. ax. 45 ⊃ — .50c. ax.135	Same.			
28.	20/30	20/40	20/20 w. +.65c. ax.90	Same.	.....	Chippewa	Trachoma: Lids rolled back and blue stick used twice a week for one month before refractive test.
	20/30	20/40	20/20 w. +.75c. ax.90	Same.			
29.	20/25	20/25	20/20 w. + .87s	Same.	.....	Sioux	
	20/30	20/30	20/20 w. +1.00s	Same.			
30.	20/100	20/150	20/30 w. —1.50c. ax.150	Same.	.....	Pawnee	Trachoma: Lids rolled and blue stick used 3 times a week for 3 weeks prior to refractive test.
	20/70	20/100	20/20 w. + .75c. ax.135	Same.			
31.	20/100	20/100	20/20 w. +.87c. ax.90	Same.	.....	Shawnee	
	20/70	20/70	20/20 w. +.50c. ax.90	Same.			
32.	20/30	20/30	20/20 w. +.12c. ax.90	Same.	.....	Oneida	Trachoma: Lids rolled and blue stick applied daily for 6 weeks prior to refractive test.
	20/200	20/200	20/20 w. —1.25s. ⊃ —.87c. ax.180	Same.			
33.	20/100	20/70	20/30 w. —.37s. ⊇ —.87c. ax.180	Same.	.....	Seneca	
	20/70	20/50	20/20 w. —.37c. ⊃ —.75c. ax.180	Same.			
34.	20/30	20/30	20/20 w. +.50s	Same.	.....	Pawnee	
	20/30	20/30	20/20 w. +.50c. ax. 90	Same.			
35.	20/50	20/70	20/20 w. +1.25s. ⊇ +.50c. ax.90	+1.00	Same.	Chippewa.	Trachoma: Lids rolled, blue stick used 2 months prior to refractive test.
	20/50	20/70	20/20 w. + .75s. ⊃ +.75c. ax.90	+ .50	Same.		
36.	20/30	20/35	20/20 w. +.75s. ⊃ +.25c. 90	+.50	Same.	Sioux	
	20/30	20/35	20/20 w. +.75s	+.50	Same.		
37.	20/40	20/45	20/20 w. +1.00s	+.87	.....	Pima Sacaton	Trachoma: Lids rolled twice in 4 months. Argyrol, 25 % sol., instilled daily for 6 months prior to test.
	20/40	20/45	20/20 w. +1.00s	+.87			
38.	20/30	20/35	20/20 w. +.62s. ⊇ +.12c. ax.90	+.50	Same.	Chippewa.	Trachoma: Lids rolled, blue stick used 3 times a week for 2 months prior to test.
	20/30	20/35	20/20 w. +.62s. ⊇ +.12c. ax.90	+.50	Same.		
39.	20/20	20/25	20/20 w. +.25s. ⊇ +.12c. ax.90	Same.	.....	Sioux	Headache. Test made 4 months after entrance.
	20/20	20/25	20/20 w. +.37s. ⊃ +.12c. ax.90	Same.			
40.	20/30	20/35	20/20 w. —.62s. ⊇ —.37c. ax.180	Same.	.....	Assinaboine.	Trachoma: Lids rolled, and blue stick applied twice a week for 2 months prior to test.
	20/30	20/35	20/20 w. —.62s. ⊇ —.37c. ax.180	Same.			
41.	20/50	20/100	20/20 w. +1.00s. ⊃ +.25c. ax.90	Same.	.....	Pottawattomie.	
	20/50	20/100	20/20 w. +1.00s	Same.			
42.	20/200	20/200	20/100 w. —6.00c. ax. 40	Same.	.....	Oneida	Trachoma: Lids rolled 3 times, also blue stick and bichlorid ointment, 1 to 500. Test made 4 months after admission.
	20/100	20/100	20/70 w. —2.00c. ax.180	Same.			
43.	20/30	20/70	20/20 w. — .75s	Same.	.....	Seneca	
	20/30	20/75	20/20 w. —1.00s	Same.			

Case number.	Vision Before Cycloplegia.	Vision During Cycloplegia.	Results of Examination, etc.	Lenses for Use. Spherical.	Lenses for Use. Cylindrical.	Tribe.	Remarks.
44.	20/70 20/50	20/70 20/50	20/20 w. —2.25s. 20/20 w. —1.50s.	Same. Same.	.....	Sioux.	Trachoma: Lids rolled, bichlorid ointment 1 to 500 used 2 months prior to refractive test.
45.	20/50 20/150	20/150 20/150	20/40 w. —1.75s. ⌒ —.25c. ax.180. 20/40 w. —1.75s. ⌣ —.25c. ax.180.	Same. Same.	.....	Sioux.	
46.	20/150 20/150	20/150 20/150	20/30 w. —.50s. ⌒ —1.50c. ax.180. 20/30 w. —.62s. ⌣ — .50c. ax.180.	Same. Same.	.....	Seneca	
47.	20/150 20/150	20/150 20/150	20/20 w. +1.00s. ⌒ +.37c. ax.150. 20/20 w. + .87s. ⌣ +.25c. ax. 20.	+.87 +.75	Same. Same.	Omaha	
48.	20/70 20/50	20/100 20/70	20/20 w. +.87s. ⌒ +.25c. ax.90. 20/20 w. +.25s. ⌣ +.37c. ax.90.	+.75 Same.	Same.	Oneida	
49.	20/30 20/30	20/45 20/45	20/20 w. +1.00s. 20/20 w. +1.00s.	Same. Same.	.....	Shawnee.	
50.	20/100 20/100	20/100 20/100	20/45 w. —1.25c. ax.55. 20/45 w. —1.50c. ax.45.	Same. Same.	.....	Arapahoe	
51.	20/70 20/70	20/100 20/100	20/20 w. —1.50s. ⌒ —1.00c. ax.180. 20/20 w. —1.25s. ⌣ — .75c. ax.180.	Same. Same.	.....	Winnebago.	Exophoria 4°.
52.	20/30 20/30	20/30 20/30	20/20 w. +.75s. 20/20 w. +.75s. ⌣ +.12c. ax.90.	Same. Same.	.....	Sioux.	Esophoria 2°.
53.	20/30 20/30	20/50 20/50	20/20 w. —1.25c. ax.90. 20/20 w. —1.25c. ax.90.	Same. Same.	.....	Sioux.	
54.	20/100 20/100	20/75 20/75	20/30 w. +.62c. ax.180 ⌒ —.50c. ax.90. 20/25 w. +.50c. ax.180 ⌣ —.62c. ax.90.	Same. Same.	.....	Mashpee.	
55.	20/30 20/30	20/40 20/30	20/20 w. +.87s. 20/20 w. +.87s.	Same. Same.	.....	Shawnee.	
56.	20/45 20/100	20/50 20/100	20/25 w. +.50s. ⌒ + .37c. ax.90. 20/25 w. +.75s ⌣ +1.25c. ax.20.	Same. Same.	.....	Chippewa	Trachoma: Lids rolled and 25 % sol. argyrol instilled t. i. d. for 2 months prior to refractive test.
57.	20/20 20/100	20/30 20/100	20/20 w. +.37c. ax.90. 20/45 w. +.50s. ⌣ +.37c. ax.90.	Same. Same.	.....	Navajo	
58.	20/100 20/100	20/100 20/100	20/30 w. +2.75 ax.105 ⌒ —1.50c. ax. 15. 20/30 w. +2.00c. ax. 60 ⌣ — .75c. ax.150.	Same.	.....	Oneida.	
59.	20/30 20/30	20/30 20/30	20/20 w. +.62s. 20/20 w. +.62s.	Same. Same.	.....	Oneida.	
60.	20/20 20/20	20/50 20/50	20/20 w. +.25s. ⌒ +.50c. ax.90. 20/20 w. +.25s. ⌣ +.50c. ax.90.	Same. Same.	.....	Cheyenne.	Eyestrain. Test made 3 months after entrance.
61.	20/35 20/35	20/50 20/50	20/20 w. +.75s. ⌒ +.25c. ax. 110. 20/20 w. +.75s. ⌣ +.25c. ax. 90.	Same. Same.	.....	Pueblo	
62.	20/70 20/70	20/70 20/100	20/25 w. —2.50s. ⌒ — .50c. ax.180. 20/30 w. — .50s. ⌣ —2.75c. ax.180.	Same. Same.	.....	Omaha	
63.	20/20 20/20	20/20 20/20	20/15 w. —1.00c. ax.180. 20/15 w. —1.00c. ax.180.	Same. Same.	.....	Apache	Trachoma: Lids rolled, and blue stick used 3 times a week for 8 months before refractive test.
64.	20/150 20/25	20/200 20/35	20/100 w. —.50s. ⌒ —.75c. ax.135. 20/20 w. —.37c. ax. 135.	Same. Same.	.....	Menominee.	
65.	20/25 20/25	20/30 20/30	20/20 w. +.25s. ⌒ +.25c. ax.30. 20/20 w. +.75s. ⌣ +.25c. ax.30.	Same. Same.	.....	Arapahoe.	
66.	20/150 20/150	20/150 20/150	20/30 w. — .50s. ⌒ —4.00c. ax. 15. 20/30 w. —1.50s. ⌣ —3.50c. ax.155.	Same. Same.	.....	Pottawattomie.	
67.	20/30 20/30	20/30 20/30	20/20 w. +.62s. 20/20 w. +.62s.	Same. Same.	.....	Arapahoe.	
68.	20/75 20/75	20/100 20/100	20/30xw. +1.25s. ⌒ + .75c. ax.90. 20/30 w. + .87s. ⌣ +1.00c. ax.90.	Same. Same.	.....	Chippewa	
69.	20/150 20/150	18/200 18/200	20/30 w. —5.00s. ⌒ —1.00c. ax.175. 20/30 w. —5.00s. ⌣ — .62c. ax.5.	Same. Same.	.....	Yuki	
70.	20/200 20/200	20/200 20/200	20/20 w. +5.00s. 20/20 w. +5.00s.	+2.50 +2.50	.....	Pawnee.	
71.	20/100 20/100	20/100 20/100	20/45 w. +.50c. ax.105 ⌒ — .50c. ax.15. 20/45 w. +.62c. ax.100 ⌣ —1.00c. ax.10.	Same. Same.	.....	Stockbridge	
72.	20/30 20/30	20/35 20/35	20/20 w. +.37c. ax.90. 20/20 w. +.37c. ax.90.	Same. Same.	.....	Tuscarora	
73.	20/100 20/70	20/100 20/100	20/45 w. +1.25c. ax.90 ⌒ —1.25c. ax.180. 20/40 w. + .37c. ax.90 ⌣ —1.00c. ax.180.	Same. Same.	.....	Tuscarora	Atropin 3 % sol. to produce cycloplegia, scopolamin and homatropin having failed.
74.	20/50 20/50	20/50 20/50	20/20 w. —.50c. ax.15. 20/20 w. +.50c. ax.75.	Same. Same.	.....	Sioux.	
75.	20/30 20/30	20/40 20/40	20/20 w. —.75c. ax.180. 20/20 w. +.50c. ax.180.	Same. Same.	.....	Oneida.	
76.	20/50 20/45	20/75 20/60	20/20 w. +1.25c. ax.85. 20/20 w. +1.25c. ax.85.	Same. Same.	.....	Oneida.	
77.	20/70 20/50	20/70 20/50	20/20 w. +.25s. ⌒ +.87c. ax.90. 20/20 w. +.25s. ⌣ +.50c. ax.90.	Same. Same.	.....	Winnebago.	Trachoma: Lids rolled, blue stick and argyrol 25 % used for 9 months prior to refractive test.
78.	20/50 20/45	20/70 20/45	20/20 w. +.50c. ax.90. 20/20 w. +.37c. ax.90.	Same. Same.	.....	Seneca	

Case. number.	Vision Before Cyclo-plegia.	Vision During Cyclo-plegia.	Results of Examination, etc.	Lenses Accepted for Use. Spherical.	Lenses Accepted for Use. Cylindrical.	Tribe.	Remarks.
79.	20/30	20/35	20/20 w. + .50s. ⌒ +.62c. ax.90	Same.	.....	Pawnee.	
	20/30	20/35	20/20 w. +1.00s. ⌒ +.75c. ax.90	+.87	Same.		
80.	20/40	20/45	20/20 w. +.37s. ⌒ +.37c. ax.135	Same.	.....	Shawnee.	
	20/40	20/45	20/20 w. +.25s. ⌒ +.25c. ax. 70	Same.			
81.	20/100	20/150	20/20 w. —1.75s. ⌒ —1.00c. ax. 10	Same.	.....	Shawnee.	
	20/70	20/100	20/20 w. —1.50s. ⌒ — .75c. ax.170	Same.			
82.	20/25	20/30	20/20 w. +.50s	Same.	.....	Tuscarora	Headache. Test made one month after entrance.
	20/25	20/30	20/20 w. +.50s	Same.			
83.	20/50	50/50	20/20 w. —1.50s	Same.	.....	Seneca	
	20/50	20/50	20/20 w. —1.50s	Same.			
84.	20/150	20/150	20/20 w. —3.00s	Same.	.....	Seneca	
	20/150	20/150	20/20 w. —3.00s. ⌒ —.50c. ax.65	Same.			
85.	20/150	20/200	20/20 w. —3.75s. ⌒ —1.00c. ax.180	Same.	.....	Sioux	
	20/100	20/100	20/20 —3.00s	Same.			
86.	20/35	20/100	20/20 w. +.50s. ⌒ +.75c. ax.90	Same.	.....	Oneida.	
	20/35	20/100	20/20 w. +.25s. ⌒ +.75c. ax.90	Same.			
87.	20/150	20/150	20/20 w. +1.00s	Same.	.....	Seneca	
	20/150	20/150	20/20 w. +1.25s	Same.			
88.	20/20	20/20	20/15 w. +.37c. ax.90	+1.25	Same.	Oneida	Headache. Test made 3 months after entrance.
	20/20	20/20	20/15 w. +.25c. ax.90	+1.25	Same.		
89.	20/25	20/30	20/20 w. +.50c.ax.90	Same.	.....	Kiamath	Symptoms of eyestrain.
	20/20	20/25	20/20 w. +.25s. ⌒ +.12c. ax.90	Same.			
90.	20/30	20/50	20/20 w. +.50c. ax.90	Same.	.....	Seneca	
	20/30	20/50	20/20 w. +.50c. ax.90	Same.			
91.	20/150	17/200	20/30 w. —2.50s ⌒ — .50c. ax.180	Same.	.....	Seneca	
	20/150	17/200	20/40 w. — .50s. ⌒ —2.75c. ax.180	Same.			
92.	20/70	20/75	20/20 w. +1.25s	+1.00	.....	Oneida	
	20/75	20/100	20/30 w. +1.12c. ax.90 ⌒ —.62c. ax.180	Same.			
93.	20/20	20/25	20/15 w. +.50s	Same.	.....	Pima.	Headache. Test made 3 weeks after entrance.
	20/20	20/25	20/15 w. +.50s	Same.			
94.	20/40	20/40	20/20 w. +1.00c. ax.105	Same.	.....	Oneida.	Trachoma: Lids rolled and argyrol 25 % sol. used daily for 2 months prior to test. Left hyperphoria, 4°.
	20/40	20/40	20/20 w. + .75c. ax. 75	Same.			
95.	20/40	20/45	20/20 w. +.87s. ⌒ +.50c. ax.180	+.50	Same.	Pawnee.	
	20/30	20/45	20/20 w. +.87s. ⌒ +.50c. ax.180	+.50	Same.		
96.	20/40	20/45	20/20 w. +1.12s.	+.87	Same.	Pottawattomie.	
	20/40	20/45	20/20 w. + .75s. ⌒ +.62c. ax. 180	+.50	Same.		
97.	20/100	20/40	20/20 w. —1.25c. ax.180	Same.	.....	Apache	
	20/100	20/40	20/20 w. —1.00c. ax.180	Same.			
98.	20/100	20/150	20/20 w. +1.00s. ⌒ +.25c. ax.90	Same.	.....	Shawnee.	
	20/50	20/70	20/20 w. + .75s	Same.			
99.	20/30	20/100	20/20 w. +2.75s. ⌒ +.62c. ax.90	+1.75	Same.	Omaha	
	20/30	20/100	20/20 w. +2.25s	+1.50			
100.	20/30	20/40	20/20 w. +.75s	Same.	.....	Shawnee	
	20/25	20/25	20/20 w. +.50s	Same.			

When cycloplegic is not stated, homatropin hydrobromate was the one used.

DISCUSSION.

DR. JOSEPH A. WHITE, Richmond, Va.: Twenty-five or thirty years ago, it was rare for me to find among the negroes a refractive case that needed correction, but as their environment has changed, and education increased among them, these troubles have become more common, and we find now a great many negroes wearing glasses. We now often find myopia among them, which was rare twenty-five years ago. It is one of the blessings of education.

I congratulate Dr. Jones on such superior results in clearing up opacities of the cornea in trachoma, because I have never had the good fortune to get that kind of result. I have always been able to find with the use of a good light or the loupe some opacification, and I never get 20/20 or 20/15 vision in cases of this kind.

DR. WALTER L. PYLE, Philadelphia: The reported remarkable eyesight of the savage has no relation to the refractive condition of his eyes, and it is quite possible for him to be hyperopic and astigmatic and yet preserve extraordinary acuity of vision. Very recently a well-known English oculist, Mr. Carter, made an investigation of the reported visual feats of the Boer marksmen. A few weeks' study convinced him that the whole subject was one of visual association and intimate acquaintance with environment. Nearly all the Boer feats in marksmanship could easily be duplicated by the British soldiers as soon as they had become accustomed to the country, the atmospheric conditions, the shadows, etc. Examination of the eyes of many of the Boer prisoners showed refractive conditions very much the same as those exhibited in the British recruits. In early experience with golf I often marveled at the unerring accuracy of the caddies in locating and finding golf-balls which seemed to me irretrievably lost. I examined the refraction of one of the most expert caddies that I have ever known and found not only that he had a substantial degree of ametropia, but that even with the optical correction I could obtain visual acuity no better than 6/9. He had simply learned by long years of experience to mark the course of the golf-ball and follow it in its flight. In this case the apparent extraordinary vision was nothing but a matter of long education and careful association of surrounding objects on the golf course. I am told that at the Carlisle Indian School there is an increase of refractive errors as the students advance in their studies. This was most likely due to the extra labor at close range producing asthenopic symptoms which lead to a careful examination of the refraction.

DR. A. L. DERDIGER, Chicago: Some years ago I gave a lecture before the Milwaukee Child Study Association of school teachers, on eyesight. In the discussion the principal of one of the schools said that if people could just live an outdoor life like the Indian, there would be no such thing as wearing spectacles. A year later I had an opportunity of visiting a town in Wisconsin where there was a reservation of

Indians and I thought I would put the matter to a practical test. I examined fifty Indians, ages from 15 to 45, both male and female. In some cases they accepted plus lenses. Homatropin was used on sixteen cases, ages 16 to 30, and in more than two-thirds of that number it had no impression whatever. Three of the number became very excited and examination was impossible. I was almost afraid for my life with one of them. In one-third of the cases I found that they would accept plus 0.50 D. and vision would be 20/20 with and 20/30 without. In about 20 per cent. there was from 0.50 to 3 D. hyperopia. Myopia was found in about one-tenth of the number; from minus 0.25 to 1 D. In this number I used atropin and found that most of the myopia disappeared under its use. After it had worn off the myopia was manifest again. In two cases mixed astigmatism under atropin was shown. All these cases were verified six months after this first examination, and again in twelve months, with some little changes. Those that were attending school had more hyperopia.

DR. F. B. TIFFANY, Kansas City: Twenty years ago I read a paper before the International Medical Congress at Washington on the subject of the errors of refraction as gathered from statistics of about two thousand schoolchildren examined at that time. Among those were several hundred Indians at Haskell Institute at Lawrence, Kansas. The examination of these Indians showed a very large percentage of hypermetropes. It was rather the exception to find an emmetrope. Very few were myopic. Many of them had disease of the conjunctiva and cornea, and many were suffering from trachoma. These Indians seemed to be of a scrofulous diathesis, probably the result of syphilization in the attempt at civilization. It was my custom, and is now, to use bichlorid, 1 to 500, after expression in trachoma.

DR. C. P. JONES, Newport News: I can not get anything like the same results in treating other races. The Russian Jew, for instance, does not respond to treatment nearly as well as the Indian. I have seen some whose eyes have been rolled a number of times, and the eyes are worse off than before. I have a number of colored patients, too, that do not respond to treatment. If you roll the lids of the Indian you can used bichlorid, 1 to 500. If he suffers any considerable pain use argyrol or blue stick and the opacities clear up wonderfully.

A BETTER PROGNOSIS IN PENETRATING WOUNDS OF THE EYEBALL.*

JOHN A. DONOVAN, M.D.
BUTTE, MONT.

The title of this paper might well be "A Plea for the Injured Eye." Before this section a year ago a member said, in the course of some remarks, that he excluded all lacerated wounds and wounds of the ciliary body which everybody enucleated. With his extensive experience, this had a definite meaning in his own mind; to those less experienced it simply confirmed their already well-established ideas that all those eyes should be removed at once. At the same time Dr. A. E. Bulson[1] quoted a case in which, in his opinion, a probably useful eye was needlessly sacrificed by an ophthalmic surgeon without having given it the slightest possible chance to recover.

Important as it is that many eyes should be enucleated, and that done quickly, it does not obviate the fact that no eye should be enucleated till each side of its case has had a fair and impartial hearing.

In no other branch of ophthalmology is a practical knowledge so essential. In any other condition, there is time and opportunity for study, but in the case of severe injuries the patient's future depends on immediate resolution. Shall we enucleate or not; operate or wait; remove foreign bodies now or later? Immediate decision on some point is imperative. There are two or three weeks in which you may safely wait; then, why this rush to enucleate?

For some years I have been carefully investigating every case seen in which an eye has been enucleated, and I am convinced, after making every allowance, that in at least one-half of these cases the eye was removed needlessly. In fact, I know of many very useful eyes that escaped because the patient refused enucleation. The most lamentable cases, as have on several occasions been emphasized before this Section,[2] are those eyes that have become lost or useless through meddlesome surgery. I have sometimes wondered whether if such interference had been avoided there would be so much sympathetic ophthalmia. Consider in animals the number of eyes lost by injury, and recall, if you can, the blind ones through sympathetic ophthalmia. Most severely injured eyes are enucleated within the first few days; in fact, the sight of a lacerated or punctured wound of the eyeball, and especially wounds of the ciliary body, immediately brings to the mind of the average operator the thought of the necessity of enucleation as the only method of treatment, as surely as a case of malaria would to his mind suggest quinin.

This paper will not deal with treatment, except in a very general way to elucidate its idea, and for the same reason classifications will be avoided. In fact, the more injuries I see the more convinced I become that there is, and can be, no definite rule of treatment that can be applied to every case. For a thorough consideration of this entire subject in a brief practical manner I would suggest a careful study of that most excellent work of Ramsay's on Eye Injuries as one of the works in the line of conservatism, which I believe will be advanced still further.

I recall two locomotive engineers, now working, with normal vision (with glasses), who had extensive wounds, extending through cornea, ciliary body and sclera, with prolapsed iris and some escape of vitreous. Another patient, with similar injury, including the anterior capsule of the lens, more than a year ago, has now an opacity of about two-thirds of the capsule only, but this is slowly extending; still he has useful vision and otherwise a perfect eyeball. A later operation will probably restore sight.

In cases of prolapsed iris, unless it is very easily replaced, I prefer to cut it off, and, if possibility of infection exists, I invariably cauterize the edge of the wound with the electric cautery or a probe heated by a spirit lamp. This, to many of you, will seem an unnecessary measure, but the results have been so uniformly good in so many cases that I believe it to be of a decided value.[3] Eserin, though universally advised, in my hands has proved useless.

In corneal and scleral wounds, a stitch is rarely necessary, though in scleral wounds the stitching of the conjunctiva to one side over the wound is often of value. Here, too, the cautery has a similar action, not only in producing a reaction which neutralizes or eliminates infection, but it forms an adhesive material, which seals the wound and hastens closure.

---

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Trans. Section on Ophthal., A. M. A., 1907, 363.

2. Trans. Section on Ophthal., A. M. A., 1907, 362; also Id., 1905, 83.

3. Am. Jour. Ophth., October, 1903.

A much clearer conception of my position may be obtained by reading the history of one case.

History.—Mr. I., as the result of carelessness in blasting, had his face, upper portion of body, hands and arms filled with fine rock. The eyelids were much swollen but I could see much fine rock imbedded in both eyes.

Treatment.—They were washed repeatedly, and atropin and dionin was used. In five days the swelling had somewhat subsided. Cocain was used, and I removed from each eye as much rock as could easily be done; this was repeated every few days till the eyes were clean. Of course, the patient remained in bed. Some days later the ophthalmoscope showed but a faint reflex in the right eye; none in the left. Right eye continued to clear; left cleared some. It showed a detached retina. After four months, O. D. vision, with a cylinder, was 20/30, but there was a piece of rock imbedded in the iris. No irritation. Three weeks later lens began to become opaque. Used atropin and dionin constantly. Notwithstanding persistent and constant coaxing on his part, operation was postponed six months more. When active changes subsided the piece of rock was removed with a piece of the iris and the lens was extracted. Operation done two years ago; vision, with glass, is now normal. If our teachings were followed—all foreign bodies removed immediately—this man would long since have been blind.

Copper, brass and iron should be removed as early as favorable opportunity will permit. Rock, glass and chemically inert matter at times seems to remain indefinitely, without reaction, but in every case must be carefully watched. Washing out the lens by opening its anterior capsule and introducing a syringe is the proper procedure when active symptoms do not soon subside, or at any time if a quiet eye becomes active and can not at once be controlled. In the majority of cases the foreign body will remain in the lens till all inflammation has subsided, when the lens can be removed with much less danger. Do not enucleate an eye, as I recently saw done by a well-known operator, because of a swollen lens.

In regard to magnet cases, which, unfortunately, in my experience, are the exception, extraction is so comparatively easy it should in every case be done at once. In these cases the eye should rarely be sacrificed. In one case, where I was obliged to make a cross-incision across the entire cornea and iris to extract a piece of steel imbedded in the posterior part of the eye, enucleation was refused. The patient was kept in bed, and now, after two years, he has a good, though blind, eyeball. In another case, a piece of steel entered the center of the cornea and partly passed through the eyeball. On removal it measured one-sixteenth less than one inch. Eye has light perception.

The use of saline solution, when required, should not be forgotten and usually the closed lids will hold it in.

Mr. J., aged 43. Extracted a dislocated cataract from bottom of a blind eye with Knapp's scoop. Lost three-fourths or more of vitreous. Filled eye with salt solution, injecting through the pupil. Result, normal eyeball.

In extracting foreign bodies from the eyeball, a T- or X-shaped incision is always preferable, and apparently closes just as readily as any other.

CONCLUSIONS.

1. Mild antiseptic cleansing — 1 to 5,000 mercuric iodid (preferable), 1 to 2,000 mercuric cyanid or 1 to 5,000 mercuric bichlorid or saturated boric acid. Argyrol in special cases.

2. Remove all magnetic foreign bodies at once; also any or all that can be removed easier and safer now than later. Those remaining to be removed from time to time when the eye can most safely stand interference.

3. Enucleate at once only such eyes as have been totally destroyed. Even then it might often be better to wait till about the fourth day to avoid the possibility of any question arising later. Others should be cleaned, filled with salt solution if necessary, prolapsed iris replaced or cut off and got in the best possible condition.

4. Cauterize infected wounds; stitch when lids will not hold edges in apposition; use atropin and dionin, as indicated. Hot applications are always safe and usually preferable to cold.

5. Keep patient in bed at least a few days, longer if possible, remembering that detachment of retina may have occurred.

6. Never interfere with an eye until you feel reasonably certain you are now doing the best thing, and that this is the best time to do it; otherwise always wait.

After ten years of active practice, constantly dealing with these injuries in the mines, smelters, railroads and shops, by carrying out the above suggestions, I have yet to enucleate my first eye that was not destroyed at once, or did not contain a foreign body, and so far, fortunately, I have never seen a case suggesting sympathetic ophthalmia where this line of treatment has been followed from the time of injury.

DISCUSSION.

DR. S. L. LEDBETTER, Birmingham, Ala.: I have never seen a case of sympathetic ophthalmitis follow injuries of this kind; of course, however, in unmanageable cases the eyes are generally removed early. In a large percentage of cases of wounds made by pocket-knives, scissors, fragments of steel from a hammer or chisel, or by shot-grains, which do not involve the ciliary zone, the eyes may be saved, with vision ranging from perception of light all the way to normal. I recall one case in which a fragment of steel from a hammer entered the cornea near the scleral margin, passed entirely through the eye, and into the orbital tissue behind, with practically normal vision resulting. I have seen normal vision in an eye that had been punctured by scissors, outside the ciliary zone, sufficient to require a stitch.

On the other hand I have seen eyes destroyed by wounds apparently trifling. I have treated but three cases of sympathetic ophthalmitis; two of those occurred fifteen or eighteen years ago. One, which I did not see until the eyes were destroyed, was the result of an arrow-wound. The other came from an iridocyclitis following an iridectomy after needling operation for soft cataract. In the third case the patient, a young girl, was brought to me with a punctured wound at the sclero-corneal margin; the wound was about a week old when I saw it. There was a hernia of the iris which could not be reduced, and was interfering with healing. It was snipped off, the eye dressed, and the patient sent home with a letter of instruction to the family physician. About eighteen days later the patient was brought to me again with an iridocyclitis in the wounded eye, and a well-marked sympathetic ophthalmitis in the other; iris heavy and cloudy; cornea full of fine inflammatory points. The sympathizing eye grew worse rapidly, and looked as though it would be destroyed entirely; vision went down to 15/200, but at the last visit it had gone up to 15/30, with general condition very satisfactory. All of these cases have been in wounds involving the iris at the scleral margin. I treated a case recently which illustrates the soundness of Dr. Donovan's ideas about waiting, only the wait was longer, I am sure, than he would advise. The patient had been struck in the eye by a foreign body twenty-three years ago. The eye was quite sore for a while; then the wound healed, and there had been no further trouble until recently, when the eye became irritable and scratchy. Examination showed a tumefaction in the corneoscleral margin, and a foreign body im-

bedded in it. It was so firmly imbedded in the swollen tissues that an incision had to be made on either side before it could be released. The fragment was irregularly shaped, about one-eighth of an inch in diameter, and held firmly in a fibrous bed. It had evidently gone entirely through the cornea, as the tissues, until recently, had covered it over, and as soon as it became loosened there was free escape of aqueous. The eye was irritable for a few days, but healed satisfactorily and has given no trouble since.

I believe in conservative surgery in penetrating wounds of the eye, but I always feel a little shaky when treating one which involves the ciliary zone.

DR. J. L. THOMPSON, Indianapolis: I agree with Dr. Donovan in regard to waiting a reasonable time before the enucleation of an eye, but I advise against waiting too long, especially when the eye is blind, or when, though a little sight remains, the eye is practically lost, and to retain the wounded organ would subject the patient to a fearful risk as to the other eye. I have seen many sad cases in which I have strongly urged the removal of an eye, and have even told the patient that I would not again see him if he did not have it enucleated. Sometimes the patient has gone to others and eventually has lost his sight; he has begged me to wait until he could hear from a distant relative, but before he could receive the letter, or the relatives could arrive, the trouble has been started and the sight eventually lost in both eyes. Many times have I removed foreign bodies from the vitreous chamber and have been rejoiced because of the excellent vision which followed. Not only have some of these patients lost sight over ten years after the extraction of the metal, but a violent inflammation has been set up which necessitated subsequent enucleation. I have no doubt that if Dr. Donovan could again see, twenty years subsequently, all the patients whose eyes were saved, or seemed to be, he would find that some have become blind in the injured eye while a few have lost the sight of both. We are told that the prevention of sympathetic ophthalmia will eventually be accomplished by suitable treatment, but until we find the means of doing this let us not be led away by transient hypotheses.

DR. ROBERT L. RANDOLPH, Baltimore: I was surprised to hear Dr. Donovan's statement that at least half of the enucleations which he had seen were unnecessary, and that he once saw a well-known oculist remove an eye for a swollen lens. I recall five cases of penetrating wound of the ciliary region complicated with traumatic cataract in which the removal of the swollen lens restored vision in two cases, while in two cases light perception and an apparently safe eye free of irritation was obtained. In the fifth case enucleation was found necessary. This problem has always seemed to me a rather simple one, and I consider Dr. Donovan's experience almost unique. I can not agree with him that any parallel can be drawn from a consideration of the lower animals when speaking of the rarity of sympathetic ophthalmia. It is quite true that it is a rare disease, but it is rare because of the attitude of ophthalmologists the world over towards this disease, and because preventive enucleation is promptly resorted to. It may be that occasionally a harmless eye is removed, but for obvious reasons it is better to take no risks when confronted with the possibility of a disease whose exact nature is so obscure, and the end of which is usually blindness. I have never been able to find, after a careful search in veterinary journals and considerable experimental experience, any evidence to show that the lower animals have sympathetic ophthalmia. I made a statement to this effect some years ago. The recent investigations of Fuchs, E. V. L. Brown and Lentz strengthen me in this view and I am more than ever of the opinion that it is a disease which is peculiar to human beings and that the lower animals do not have sympathetic ophthalmia, just as they do not have either syphilis or smallpox.

DR. MELVILLE BLACK, Denver: I do not believe it is true of surgeons of experience that many eyes are being sacrificed without being given the benefit of the doubt. I take it as an ophthalmologic precept that an eye is not to be sacrificed unless it is hopelessly injured, or there is evidence that it is unsafe to delay enucleation. I can not agree with Dr. Donovan as to the use of hot applications. Both theory and experience teach that ice applications by reducing the temperature control the infection until Nature's forces can take care of it.

DR. J. W. PARK, Harrisburg: I live near the Pennsylvania steel works and a number of other large iron works. We have at least three or four serious accidents every week. Two or three years ago I had a case of an incised knife wound of the ciliary region. Most of the vitreous escaped and enucleation was necessary. This occurred in the afternoon and I thought I could apply cold applications and defer enucleation at least for a few hours. To my surprise, inside of three hours the man complained that he could hardly see with the other eye. I carefully tested his vision and he only had 10/200. I had the case prepared for enucleation at once. He regained part of his vision. It shows the necessity, in wounds involving the ciliary region, of removing the eye promptly. I have also lately had a case in which there was a wound 10 m.m. long through the sclerotic with a large bead of vitreous protruding, which I excised. I put in two sterilized catgut sutures, the wound healed up promptly, and the man had 20/40 vision. It shows the difference in cases and the care that must be exercised, especially in injuries involving the ciliary region.

DR. R. H. T. MANN, Texarkana: In the two cases of large corneoscleral wounds with escaping vitreous I succeeded in suturing the sclera and saved each of the eyes. That has been several years ago and there has been no trouble in either eye since. A young man was brought to me with slight protrusion of the iris, with small corneoscleral wound; I clipped off the protruding iris and kept the patient under observation a week. The wound healed without any inflammation. At the end of a week this patient left me with perfect acuity of vision, 20/20. A few weeks later he was brought back to me with a sympathetic ophthalmia in his other eye, and in spite of all I could do the sympathizing eye was lost. It is difficult to know what to do with these cases.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: The questions to be decided are always, what is to be gained by treatment instead of enucleation, and what is the risk? I believe that we all recognize that an injury in the ciliary region is prone to produce sympathetic irritation and perhaps inflammation. I think that the experience of the majority of ophthalmologists will not bear out the statement of Dr. Donovan that sympathetic inflammation is rare. If there is an injury in the ciliary region, with prolapse of iris, injury of the lens, and perhaps loss of the vitreous, removal of the globe would seem to be indicated as the best and safest procedure, for other treatment would require protracted time, expense and suffering, with the ultimate result of saving little or no vision, and perhaps an irritable globe which later would require removal. But if any question arises as to whether the eyeball can be saved, either with or without sight, it is safe to delay enucleation for a week or ten days following the injury, as sympathetic inflammation has not been known to occur inside of two or three weeks following the injury, and before that time has elapsed the fate of the eye can usually be foretold. I am strongly of the opinion, however, that we are not warranted in taking too many chances, and enucleation of a badly injured eyeball, even with prospects of ultimately saving a little vision in it, is far preferable to blindness of the fellow eye through too much conservatism in an effort to avoid removal of the injured globe. I know of several cases of blindness by sympathetic inflammation following efforts to save badly injured eyeballs, and no doubt there are other members of this section who know of similar cases. In any event the patient should know the risk to be run as well as the possibilities in the way of saving eyeball and sight if an attempt is to be made to save a badly injured eyeball.

DR. J. A. DONOVAN, Butte, Mont.: Some one suggested the possibility of vision in the other eye becoming poor at once. I remember bandaging one eye; the next day the patient returned with the bandage off as he could not see with the other

eye. He said that the other eye had been good before, but on examination I found that he had an old optic atrophy which had not been suspected. Each one has discussed this subject from the standpoint of his own experience. All these cases must be treated individually. I said in opening my discussion that I was not discussing the indications for enucleation, but the indications for not enucleating. Within the past month's time I have had four patients, hurt in the same blast, from whom I removed three eyes; so you see I do not try to save all, but do not remove an eye that may be useful unless the indications for doing so are positive.

Clinical Notes

INFLUENCE OF NUTRITIVE ENEMATA ON GASTRIC SECRETION.

LOUIS A. LEVISON, M.D.
Attending Physician Lucas County Hospital.
TOLEDO, OHIO.

The experiments described below were carried out at the Lucas County Hospital on a young woman possessing an external gastric fistula. The gastrostomy was performed by Dr. J. H. Jacobson owing to an impassable esophageal stenosis following the ingestion of lye.

It was my endeavor to determine what effect the administration of nutritive enemata had on the secretion of gastric juice. Owing to the widespread use of nutritive enemata in many conditions, and especially in gastric ulcer, definite knowledge on this question is desirable. The practical application of the results lie in the administration of remedies to counteract any excessive or acid secretion which might possibly be produced subsequent to the enema.

The points determined in the experiments herein described were the total amount of secretion, the free and total acidity and the pepsin value. All acid determinations were by the method of Töpfer. For the pepsin determinations the edestin method was used as described by Fuld and Levison.[1]

METHOD EMPLOYED.

Briefly, this method is as follows: Edestin, a white albuminous powder derived from hempseed, is used in a solution of 1 to 1,000, using as a solvent a hydrochloric acid solution having a titration strength of 30. The filtered stomach contents are used in two dilutions 1 to 100 and 1 to 10. The test is carried out with a row of six or eight test tubes for each dilution. In the first tube is placed 1.0 c.c. of the diluted stomach contents, in the second 0.8 c.c., in the third 0.6 c.c., in the fourth 0.5 c.c., in the fifth 0.4 c.c., in the sixth 0.3 c.c. in the seventh 0.2 c.c., in the eighth 0.1 c.c. To each tube is added a definite amount (2.0 c.c.) of the edestin solution and the whole allowed to digest at room temperature for one-half hour. At the end of this time strong ammonia is run down the side of each tube through a pipette so as to form a layer above. In cases in which digestion has been absent or incomplete a distinct white ring will be seen at the point of contact. Absence of this ring denotes complete digestion. The point of demarcation between the tube with a ring and the tube without is taken as the pepsin strength. Thus if in the series of the 1 to 100 dilution the tube with 0.5 c.c. has no ring, while the tube with 0.4 c.c. shows a ring, the result may be recorded thus:

$$\frac{\text{2.0 (edestin used)} \times \text{100 (dilution)}}{\text{0.5 (stomach contents)}} = 400$$

In the subject of these experiments the normal acid values and pepsin contents were determined after an Ewald breakfast. The free hydrochloric acid varied from 18 to 25 and the total acid from 30 to 50. The pepsin values were from 30 to 100, rather low amounts. The stomach contents were always removed by direct aspiration through the fistula and the amount removed was practically the entire amount secreted.

Ten determinations were made with enemata. The bowels were kept cleaned and a high enema was given through a soft rubber rectal tube. The enemata consisted of about a half-pint of milk, raw eggs and salt, with at times sugar added. Occasionally the milk was peptonized. The time of administration was always in the morning, before the patient had taken food or drink.

Experiment.	Enema.	Fasting stomach contents before enema.			Stomach contents one-half hour after enema.			Stomach contents one hour after enema.			Stomach contents two hours after enema.		
		Amount.	HCl.	Pepsin.	Amount.	HCl.	Pepsin.	Amount.	HCl.	Pepsin.	Amount.	HCl.	Pepsin.
1.	Eggs, milk, salt	18.0	12-18	80	24.0	24-40	200	5.0	20-50	500	15.0	10-40	200
2.	Eggs, milk, salt	22.5	25-40	80	32.0	32-48	31	7.5	36-52	50	10.0	0-10	125
3.	Eggs, milk, salt	10.0	6-20	50	18.0	*	31	13.0	15-30	50	5.0	4-18	25
4.	Eggs, milk, salt	17.0	12-22	80	40.0	48-60	310	35.0	18-24	31	12.0	16-22	31
5.	Peptonized milk, eggs, salt	15.5	15-24	31	32.0	55-70	125	20.0	22-28	800	3.0	18-32	50
6.	Peptonized milk, eggs, salt	8.0	8-16	50	26.0	30-58	50	18.0	16-36	40	6.0	12-26	44
7.	Milk, eggs, sugar, salt	12.0	4-12	50	38.0	46-66	80	16.0	12-30	80	8.0	12-45	50
8.	Milk, eggs, sugar, salt	19.0	22-30	80	44.0	36-52	200	23.5	20-28	200	11.0	11-26	200
9.	Eggs, milk, salt	6.0	12-20	50	35.0	25-32	50	10.0	36-46	25	7.0	8-14	64
10.	Eggs, milk, salt	11.0	10-18	31	17.0	36-40	400	12.0	16-28	31	12.5	14-22	50

* Not taken.

TECHNIC.

Each experiment was performed as follows: The contents of the fasting stomach were removed, the enema administered and the gastric juice removed by direct aspiration at the end of one-half hour, one hour and two hours after the enema. The results are tabulated, each space showing the amount of secretion in cubic centimeters, the hydrochloric acid and the pepsin work.

It will be noted that quite constantly the secretion was fairly large after thirty minutes. The hydrochloric acid rose at this period to figures considerably higher than the strength of the fasting stomach contents removed prior to each enema. At the end of the one hour period the amount of secretion showed a diminution as compared to the one-half hour amounts, likewise the acidity. At the end of two hours the amount of secretion was small and the acidity low. The pepsin values on the whole were low and did not seem to be especially influenced by the enemata. As a rule, it required a low dilution, e. g., 1 to 10, to secure digestion, but occasionally there were sharp variations from this, difficult to explain.

The half-hour secretion corresponds closely to the psychic juice secreted in *scheinfütterung* experiments

[1] Biochem. Zschr., vi, 5 and 6; and American Med., February, 1908.

and probably depends on the appetite of the patient. Whether there would be an increased secretion in a patient surfeited with food is questionable. Technical difficulties would well prevent the administration of enema to sleeping subjects as worked out by Pawloff in sleeping animals.

It would seem from these experiments that the administration of nutritive enemata does affect the gastric juice, in that the amount and acidity are increased.

237 Michigan Street.

BIRTH OF UNDEVELOPED TWINS COMPLICATED BY HEART DISEASE.

J. C. JOSEPHSON, M.D.
BALTIMORE.

The following case is unique in my experience:

History.—Mrs. E. S., multipara, eight months pregnant, had for some time had troublesome cough, which I found to be due to a chronic endocarditis, not attended, however, with marked failure of compensation.

Labor.—The labor was slow and the pains ineffective. After the lapse of about two hours I ruptured the membrane, and two minutes later the child was born—a very small child, about the size of a six months fetus. Six minutes later the woman had a strong pain, and the placenta was born, together with a second infant in a closed amniotic sac, just as one occasionally sees in abortions of the second or third month. I hurriedly opened the sac and removed a live child a little smaller than the first one. Although the uterus contracted firmly and there was only the usual discharge of blood, the woman was attacked immediately on the birth of the second child and placenta with a distressing cough, dyspnea and a profuse discharge of frothy and bloody mucus—edema of the lungs, in short. In spite of all efforts, she died about three hours later. The babies survived a few days.

The sight of an infant almost at term moving in the amniotic sac was novel to me. The fate of the mother, too, impressed very vividly on me the danger of pregnancy in a woman with valvular lesions.

4 North Broadway.

PILO-NIDAL SINUS.

CHARLES C. ALLISON, M.D.
OMAHA.

The pathology of pilo-nidal sinus has been fully described by Hodges.[1] When one of these hair-containing perineal sinuses is first seen an erroneous diagnosis of anorectal fistula is frequently made. The symptoms are the presence of one or more small indurated areas in the perineum, with a history of pain and intermittent discharge. Associated with the conditions there will be uniformly noted a small depression in the integument, designated by the French the posterior navel, located between the tip of the coccyx and the anus. This dimple in the integument permits of pilus engagement and burrowing, until an actual nest of hairs becomes lodged under the skin with subsequent infection and the development of a small abscess.

The conclusions might be reached that a cyst of embryonic origin had led to this condition—that certain buried epithelial cells, prenatal in origin, had remained latent, after the style of a dermoid, and finally developed its pilus appendage. This has been found to be incorrect, as no true epithelial cells nor hair bulbs have been discovered in the contents.

Given, therefore, a small tegumentary depression, the history of pain and of the development of a small abscess, with an earlier history of nodules, or of discharge from the depression in the skin, in a person whose integument is well supplied with hair, the pilonidal cyst may be recognized. I have never found a case in which the burrowing has invaded the bowel, so that in my experience the condition is not fistulous in character.

To treat the condition successfully it is essential to search carefully, after wide exposure, for ramifications of the sinus and particularly for small hair nests, which may be lodged and temporarily latent at some distance from the main sinus. Following the excision of the sinus wall in all of its ramifications the wound may be closed for primary union and the period of convalescence much abbreviated.

1. Boston Med. and Surg. Jour., 1880, p. 485.

PRIMARY ERYSIPELAS OF THE PHARYNX.

WM. H. RENDLEMAN, M.D.
DAVENPORT, IOWA.

In view of the facts that probably not more than a dozen cases of primary erysipelas of the pharynx have been reported in this country, that it is probably much more frequent than is recognized, and that the cases reported have been almost universally fatal, the following report should be of interest:

Patient.—Miss M. N., aged 22, waitress, had previously had good health except for two attacks of facial erysipelas when 5 or 6 years old. I first saw her June 9, 1907. She complained of having had a slight sore throat for four or five days. The morning I saw her she had had a hard chill with headache and fever. Her breathing was at times difficult. There was considerable pain in throat, made worse by deglutition, and some swelling on left side of neck. She was a healthy-looking girl, fleshy, and well-nourished. The breathing was slightly obstructed, much worse at times. There was some hoarseness and she was very restless. Temperature, 103; pulse, 120. On the left side of the neck there was moderate swelling of the glands along the anterior border of the sternomastoid. There was no induration surrounding the glands; no fluctuation, no change in the skin. There was some tenderness on pressure and pain when the head was moved, but no spontaneous pain. Dr. J. V. Littig made the throat examination. The pharynx was dry, red, and there was little if any swelling. The tonsils were slightly enlarged, follicular; no exudates. The epiglottis was very large, globular in shape, grayish red, causing some obstruction to the glottis. The vocal cords were somewhat congested. The urine was negative. Leucocytes ranged from 18,000 to 25,000. Examination of the rest of the body was negative. A probable diagnosis of deep cellulitis of the neck, following a mild pharyngitis and tonsillitis was made. The patient gradually became worse, the breathing more obstructed.

Course of Disease.—The hoarseness increased, and the temperature ranged from 104 to 105, with very little remission. Cold was applied, calomel given and a mouth wash used. On the fourth day the temperature fell after a profuse sweat to 99, remaining so for about twenty-four hours, the throat symptoms and general condition were much better, the swelling and tenderness of the glands on the left side gone. On the fifth day the fever rose to 104, and the condition became worse again. The dyspnea was continuous, the throat findings the same as in the first examination. Swelling and tenderness of the glands on the right side along the sternomastoid now made an appearance. On the sixth day there was a small spot of redness on the right side at the angle of the jaw,

with some swelling and tenderness of the skin. The next day the area of redness had raised edges, was hard, and advancing over the ear, face and forehead. It spread rapidly over the eyes and forehead to the opposite side of the face with formation of bullæ, giving a typical picture of erysipelas. The throat symptoms gradually abated, and the temperature fell by lysis to normal on the eleventh day, after what I considered the beginning of the erysipelas. Recovery was complete. Examination five months later was negative.

Treatment.—No special treatment was employed. Eliminative and palliative measures with local applications of cold were used. Tracheotomy and intubation sets were kept in readiness.

This condition has seldom been diagnosed before its appearance was manifest on the skin. In this case the diagnosis was not made until the sixth day. The fact that erysipelas infection often makes its entrance through abrasions of the nasal mucosa and its accessory sinuses would make us expect it more frequently in the pharynx and larynx. No doubt this condition is often unrecognized when present.

AN INEXPENSIVE HOME-MADE MILK REFRIGERATOR.*

ALFRED F. HESS, M.D.
NEW YORK CITY.

Individuals and communities are at present much interested in the question of pure milk for the infants of the poor. A more rigid supervision is gradually being enforced over all those who handle milk—the farmer, the dairyman, the wholesaler, and the retailer. Although these efforts can not be too highly commended, too little stress has been laid on the importance of the care of the milk in the home of the consumer. No matter how carefully the milk has been obtained and guarded up to the time it is retailed, even if it is pasteurized or certified, it will be rendered unfit for food after standing in a room at summer heat for a few hours. That this is a real danger is known to all who have tended babies in the tenement houses in summer. Most of the people in poor circumstances have no ice or an insufficient supply, so that the milk is kept at a temperature of from 50 to 70 F.

For some months I have been endeavoring to devise a simple and inexpensive means for keeping milk in summer—one that will be within the reach of the mother in the tenement house. After considerable experimenting, I can recommend the following box for this purpose:

An ordinary packing case was obtained; it had been made for bottled water, and measured on the inside 13 by 18 inches and was 11½ inches in depth. Sufficient sawdust was placed in this box to make a substantial layer on the bottom. On this was set a tin can, tall enough to hold a quart bottle of milk and 8 inches in diameter, and around this was placed a cylinder of tin a little larger in diameter than the can. The cylinder was then surrounded by sawdust. The lid of the can was, of course, left free. The ice box was completed by nailing about 50 layers of newspaper to the lid of the case (Figs. 1 and 2). The total cost of such an apparatus is the cost of the tin can, which may be 25 or 50 cents, according to the quality. The box and sawdust can be obtained free from a grocer.

* From the Research Laboratory, Board of Health, New York.

To test the value of the box, a quart of milk was placed in the can and surrounded by 6 or 7 pounds of ice; that is to say, less than 5 cents worth. The room temperature was 81 F. The efficacy of the refrigerator was demonstrated by the fact that twenty-four hours later the temperature of the water in the can was 33 F., the milk in the bottle 37 F., and that even after forty-five hours the temperature of the water had risen only to 50 F. and the milk to 52 F.

Numerous variations from this type of box were found to keep out the heat. A somewhat larger box was found more desirable. Excelsior may be substituted for sawdust. All that is necessary is that the can containing the ice be surrounded on all sides by a material which conducts heat poorly. Care should be taken that the can rests on sawdust and not directly on the wooden floor of the case. Should the case be rather shallow for

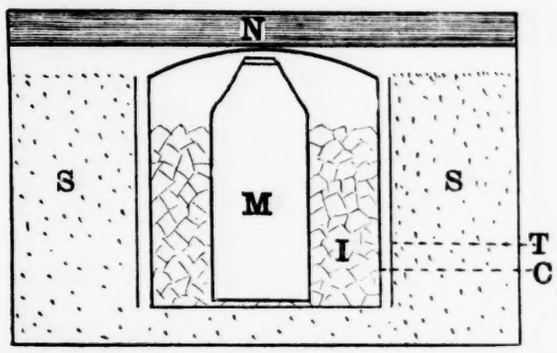

Fig. 1.—Vertical section of home-made milk refrigerator; S, sawdust, excelsior or other cheap non-conductor of heat; T, cylinder of tin or galvanized iron; C, can in which is placed the milk jar M, surrounded by broken ice, I; N, newspapers nailed to lid of case.

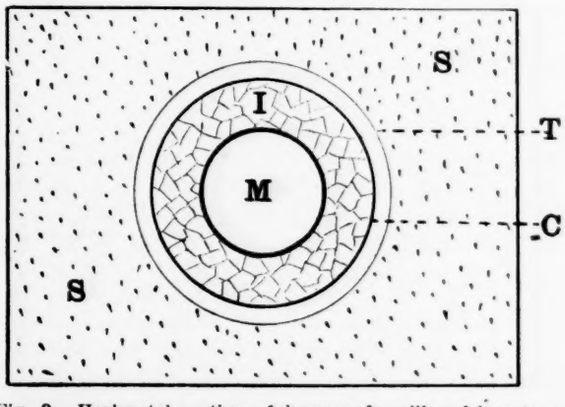

Fig. 2.—Horizontal section of home-made milk refrigerator; M, milk container; I, broken ice; C, can for holding ice; T, tin or galvanized iron cylinder to prevent sawdust, S, from falling into space when can is removed for purpose of emptying water.

the can, newspapers should be laid between the two. To prevent rusting a little soda may be placed in the can every day.

The apparatus described above will keep two quart bottles of milk, or four eight-ounce feeding bottles. The great majority of mothers in the tenements keep the day's supply of milk in a quart bottle and possess but two or three nursing bottles. As the ideal method is to have as many bottles as there are feedings in the course of the day, it was determined to make such minor modifications in the ice box as would allow of this procedure. To this end a tin can was obtained which was 8¾ inches in diameter and cost 30 cents. It was sufficiently large to admit a wire bottle holder

costing 45 cents and containing eight bottles. A case 18 inches square was employed to hold it. The ice was cracked into smaller pieces than before, 6 or 7 pounds being used, and the wire holder with its bottles (previously cooled in running water) was then set on the surface of the ice, or rather gently pressed down into the ice. Within one hour the temperature of the milk fell from 67 to 55 F. and continued to fall. After twenty-four hours it was at 39 F. and the water at 38 F.

The bacterial content of the milk was 7,000 bacteria to the c.c. when it was obtained. After twenty-four hours the milk in the refrigerator had risen to 42,000 to the c.c. A sample of the same milk left at a temperature of 73 F. showed 12,360,000 bacteria to the c.c.

Will mothers take the trouble to improvise ice boxes of this description? From an experience with mothers who consult the dispensaries I can say that they are anxious to do all in their power to protect their babies. Many would be quick to profit from the lesson if they saw a model of the ice box, were told how cheaply it can be constructed, how it will economize ice, and, finally, how its employment will aid in saving the baby from an attack of the much-dreaded summer complaint. The cost of such ice boxes can be considerably reduced if they are made in large quantities, so that with private and municipal cooperation they could be supplied for much less than the above figures.

Refrigerators of this design, one and one-half feet square by fourteen inches deep, have been distributed among the children's dispensaries, dairy kitchens, nurses' settlements and kindred organizations in New York City, where they are being demonstrated to mothers. It is hoped that this article may encourage other communities to similar action in aid of the poor babies.

Therapeutics

SALICYLIC ACID.

Salicylic acid may be classed as an antiseptic, as a bowel antiseptic and as a "specific" in acute inflammatory rheumatism or acute arthritis. As a local antiseptic it is valuable, but too expensive for extensive use. Its greatest value as a local antiseptic is in powders and ointments. Salicylic acid in some form represents, perhaps, the best bowel antiseptic that can be administered. For this purpose some combination of it or some salt of it which does not break up and become absorbed as quickly as does salicylic acid or sodium salicylate is better. The antiseptic action then extends farther down the small intestine.

While, on the one hand, it is absurd even to consider the possibility of rendering the intestinal canal aseptic, it is just as absurd to believe that some form of salicylic acid can not render the upper part of the intestine less likely to become the abode of bacteria, because such would not be the fact. In other words, it is certainly possible and is clinically easily demonstrated that fermentation and putrefaction in the intestine may be diminished by the administration of a salt of salicylic acid, as represented by salol or phenylis salicylas. It is well recognized that the normal hydrochloric acid of the stomach tends to inhibit fermentation, not only in the stomach, but in the upper part of the intestine. It is also recognized that, while normally bile is not a germicide, it does inhibit putrefaction in the intestine. Salicylic acid has the same power, and perhaps much more in acting as a bowel antiseptic. It may be able not only to prevent typhoid and other germs, especially the colon bacillus, from migrating to the upper part of the intestine, but after absorption it may be able to prevent these germs from coming to the upper part of the intestine, gall bladder, etc., by the lymph and blood streams. At any rate, it is a common and every-day demonstration that diarrheal disturbances, not chronic, but due to an acute infection or to poisonous articles of food, are stopped and prevented by salicylic acid in the form of phenylis salicylas.

Another advantage of phenylis salicylas is that it does not disturb the stomach, not being broken up there into its component parts of phenol and salicylic acid, i. e., not under ordinary conditions, it being only so decomposed in alkaline media.

Salicylic acid seems to have some stimulant action on the liver, and it is thought that more and better bile is excreted under its action.

It is somewhat irritant to the mucous membranes, and for this reason may cause nausea or vomiting and a reflex urticaria.

The signs of its full action are known as "salicylism" and are not unlike "cinchonism," i. e., there is a fulness of the head, perhaps headache, ringing of the ears and sometimes dizziness. With ordinary doses of a pure, natural product, i. e., preparations made from plants and not synthetically, the heart and circulation are not disturbed, although the surface blood vessels are dilated, and thus there is caused an increased perspiration. If salicylic acid is too long administered, by its power to increase nitrogen waste, impaired nutrition occurs, and debility is caused. The patient also may become anemic, with a tendency to hemorrhages and bleeding from the mucous membranes. Therefore, salicylic acid in any form should not be administered in any dosage but minute for longer than two weeks at a time as the outside limit. Many a patient has had a protracted invalidism following a rheumatic fever because salicylates were administered too long.

The specific action of salicylates in acute inflammatory rheumatism may be due to its bowel antiseptic action, to its antiseptic action on the blood (and rheumatic fever is doubtless a germ disease, and perhaps caused by several germs), or to the increased elimination of waste products which it causes, or it may act for good in all these ways.

INTERNAL ADMINISTRATION.

The ordinary dose of salicylic acid and of sodium salicylate are the same, as the former is less soluble than the latter, although the latter is naturally the weaker preparation. The adult dose in rheumatic fever is a gram (15 grains) of either of these preparations, administered four times in twenty-four hours, or for a few doses, perhaps, at four-hour intervals. Symptoms of "salicylism" occurring should cause the frequency or the size of the dose to be decreased. If an acute arthritis is not improved in four or five days, and certainly in a week, the salicylic acid should ordinarily be stopped. If there is improvement it may be continued in smaller doses, two or three times in twenty-four hours, for a longer period.

As the drug is very sweet, it is absurd in administering it to add any sweet preparation to disguise it, and generally the simplest method of administering a drug is the best. If the dose to be administered is very small, from 0.01 to 0.25 gram (from 2 to 4 grains)

it may occasionally be given in capsule form, but in that case it must be given after a meal, as when it begins to dissolve it may cause considerable gastric pain and even vomiting. This might be prevented by a combination with bismuth, as:

℞.	gm.		
Sodii salicylatis,		or	
Bismuthi subnitratis, āā	5		āā, gr. lxxv

M. et fac capsulas, 20.
Sig.: One capsule, three times a day, after meals.

If given in liquid form, which is the best way, the following is not especially unpleasant:

℞.	gm. or c.c.		
Sodii salicylatis	20	or	3v
Aquæ gaultheriæ	100		fl℥iv

M. et sig.: A teaspoonful, with plenty of water, every six hours.

This could also be administered in some sparkling water.

A nascent sodium salicylate is sometimes deemed advisable as follows:

℞.	gm.		
Acidi salicyli,		or	
Sodii bicarbonatis, āā	20		āā, 3v

M. et fac chartulas, 20.
Sig.: A powder, in a glass of water, every four hours. To drink as effervescence is about completed.

The oil of wintergreen may be used in place of the salicylic acid, if desired. The dose is 1 c.c., or 15 minims. It may be obtained in elastic capsules and thus administered, but should not be taken on an empty stomach. This preparation is sometimes rubbed into joints or applied on cotton to the affected parts.

Methylis salicylas, methyl salicylate, an artificial or synthetic oil of wintergreen, is also used externally as a liniment in rheumatic conditions.

Salol, or phenylis salicylas, ordinarily should not be used in rheumatic fever. It should also not be used when there is any kidney disturbance, as the phenol part of the preparation can cause kidney irritation. Salol should also rarely be used in very large doses, or too long, or in large doses too frequently, as it can cause the urine to become dark, indicating phenol poisoning, and may even cause hemoglobinuria and other symptoms of phenol poisoning. The best use of salol is as a bowel antiseptic, for which it may be given in doses of 0.50 gram (7½ grains) repeated two or three times, or doses of 0.30 gram (5 grains) repeated a series of times, or a still smaller dose repeated a number of days.

Salol is also much used in specific urethritis, and is valuable in certain forms of cystitis and pyelitis. As a bowel antiseptic:

℞.	gm.		
Phenylis salicylatis	2	or	3ss
Bismuthi subnitratis	4		3i

M. et fac chartulas, 4.
Sig.: One powder every three hours.
Or,

℞.	gm.		
Phenylis salicylatis	3	or	gr. xlv
Bismuthi subnitratis	10		3iiss

M. et fac chartulas, 10.
Sig.: One powder every two hours.

For gonorrhea:

℞.	gm.		
Phenylis salicylatis	5	or	gr. lxxv

Fac capsulas, 20.
Sig.: One capsule every four hours.

In typhoid fever:

℞.	gm.		
Phenylis salicylatis	4	or	3i

Fac capsulas, 20.
Sig.: One capsule every six hours.

EXTERNAL USES.

The oil of wintergreen is often used externally in rheumatic conditions, but the methyl salicylate is probably as valuable and much cheaper. Either may be used undiluted, applied to the affected joint on absorbent cotton, or a little may be rubbed into the joint, or they may be diluted, as:

℞.	gm. or c.c.		
Methylis salicylatis	10	or	fl3iiss
Petrolati	25		3iv

M. et sig.: Use externally as directed.

Or the methyl salicylate may be used as a liniment, as:

℞.	c.c.		
Methylis salicylatis	50	or	
Linimenti saponis, ad	100		āā, fl℥ii

M. et sig.: Use externally as directed.
Or,

Methylis salicylatis	50	or	
Linimenti chloroformi, ad	100		āā, fl℥ii

M. et sig.: Use externally as directed.

Shoemaker suggests the following three prescriptions for profuse or fetid perspiration:

℞.	gm.		
Acidi salicylici	10		3iiss
Bismuthi subnitratis	15	or	3iv
Zinci oleatis	10		3iiss

M. et sig.: Use on the parts affected.

For eczema with fissures:

℞.	gm.		
Acidi salicylici	3		gr. xlv
Betanaphtholis	50		gr. vii
Unguenti hydrargyri nitratis	10	or	3iiss
Unguenti zinci oxidi	20		3v

M. et sig.: Use externally as directed.

For dry eczematous patches on the skin:

℞.	gm.		
Acidi salicylici	2		3ss
Bismuthi subnitratis,		or	
Amyli, āā	10		āā, 3iiss
Adepis lanæ hydrosi	30		3i

M. et sig.: Use externally as directed.

The following may be used for pruritus:

℞.	gm.		
Zinci oxidi	5		3iss
Phenolis liquefacti	25	or	m. iv
Acidi salicylici	50		gr. vii
Petrolati albi	30		3i

M. et sig.: Use externally as directed.

The following may be used for profuse, oily secretion of the skin:

℞.	gm.		
Acidi salicylici	1		gr. xv
Olei olivæ	15	or	fl℥ss
Adepis lanæ hydrosi	20		3v
Aquæ rosæ	25		fl3vi

M. et sig.: Use externally as directed.

TOILET AMMONIA.

The *Druggists Circular* for March, 1908, suggests the following:

℞.	gm. or c.c.		
Aquæ ammoniæ	250		Oss
Saponis mollis	120		fl℥iv
Acidi oleici	10		fl3iiss
Olei myrciæ,		or	
Olei rosmarini, āā	1		m. xv
Olei lavandulæ	10		fl3iiss
Aquæ, q. s. ad	1000	q. s. ad	Oii

M. et sig.: Ammonia water for toilet purposes.

"Dissolve the soap in 500 c.c. (a pint) of warm water, and when cool add the ammonia water and the oils; mix by agitation and add lastly the oleic acid and enough water to make 1,000 c.c. (a quart)."

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, JULY 25, 1908.

MEDICAL WORK IN VIENNA.

For many years, perhaps forty, there have been in Vienna a considerable number of American physicians who are pursuing postgraduate work. This little colony is constantly changing in its make-up, a physician who stays for a longer term than two years being the exception; but even so, there is about it a uniformity of purpose and a permanency in certain customs and traditions that constitute an asset whose value has been clearly recognized and jealously guarded by the generations of physicians who have made Vienna their temporary home.

While social reasons and the desire to gain knowledge from informal or formal scientific converse had much to do with the formation of the Anglo-American Medical Association of Vienna, no doubt one object in view was the preservation of this knowledge of local conditions, and of the traditions and customs just referred to, and the desire to hand these down as an heritage to oncoming physicians to whom they would be of help. And we believe the association has done good service in these respects.

But from resolutions adopted for publication in THE JOURNAL, from protests we have received against the publication of these resolutions, and from correspondence that has come to hand, we judge there has been some little discussion, indeed some rather lively discussion, going on among the American physicians in Vienna as to the stand the local association should take in encouraging physicians of all kinds to make Vienna their medical Mecca. Some have felt that the association should advise all who have only a short time to spend in postgraduate work to keep away, not on the ground that they are directly harmful to those already in residence, but that they themselves will be saved keen disappointment, for, it is announced, Vienna is not a place for "short-timers," it is of benefit only to the "long-timer," i. e., the one who can stay for six months or more. Others, resenting the somewhat aristocratic tone of the long-time, oligarchical party, say Vienna is still a good place for the short-time man, that he may profit by even a brief stay, and they deprecate spreading the impression that the man of limited time or limited means is *persona non grata;* he is a welcome addition to the medical colony.

Physicians going abroad for study at a medical center such as Vienna may be divided into four groups. The first group includes those who merely pretend to study. The work that they talk about on their return home—and this talk is a part of their stock in trade—consists of attendance on a few clinics, the staining of a section or two in a pathologic laboratory, a trip through a ward with a docent and then a flitting in a few days to another city where they again take "special courses" under Professor A or Professor B, etc. These men are essentially shams. They never intend to do serious work, or at least their "work" can not be taken seriously.

The second group is made up of men, as a rule, somewhat mature in years and in experience, often men who are teaching in colleges or are connected with hospitals. They stay but a short time, they take a little course perhaps in some special field connected with medicine or surgery, but they spend their time chiefly in hearing different teachers and in studying methods. They talk much with students. They get hold of an assistant and over the coffee and cigars learn more as to the inside workings of the hospital, the merits of the different teachers and what new investigations are in progress by the advanced workers than the ordinary doctor can find out in a year. They leave quietly after a few weeks, refreshed from having breathed an invigorating atmosphere, filled with new ideas as to what is going on in the medical world, entertaining pretty definite notions as to certain things that they will imitate and certain other things they will avoid. They are not pretenders. They are honest men who profit by their brief stay. They know what they have come for and they get it.

In the third group are the young men only a few years from college or from hospital interneships who have saved and planned for a good long stay and for solid work. They learn to know the ropes, they plan their work systematically, they keep the classes of the best teachers full of their own numbers, and the waiting list for these classes whose membership is limited is a long one. They "stand in" with everybody from the *Diener* to the *Geheimrath*. They have the inside track and, as a rule, they know it and sometimes show that they are aware that they have an advantage over the newcomer who can stay but a short time. They get a very great deal from their work.

In the last group are the men who come with vague and often incorrect knowledge as to local conditions. They have heard of the remarkable opportunities offered the American student in Vienna, how courses are especially prepared for him, how the cost of living is a trifle and they have an ill-defined notion that by putting a few *hellers* into the slot there will be ground out in a few weeks a full-fledged training as a specialist in any one of several lines, or even in several lines at the same time. They are disappointed to find that a knowledge of German is an essential, hardly a course being given

in English; they are surprised to find that in Vienna good rooms and good board such as they would be content with in America cost much money; and that the instructor who designed the course for the American has one eye on the scientific feature of the course and the other on the American's pocketbook; they find the best courses full; they find the distinguished Professor X in his dotage, Professor Y unapproachable, Professor Z teaching eruditely, and stubbornly refusing to come down to the level of our American practical physician. By the time they have become oriented and have learned all these things, the leave of absence and money are exhausted and they return sadder, wiser, disappointed, often disgruntled and unjustly critical.

We can not pretend to speak from this distance with an absolutely accurate knowledge of conditions as they are at this moment in Vienna. But it would seem to us that little good can come from making public announcement as to who ought and who ought not to go there for purposes of study. We are not discussing the question as to whether the cut and dried courses that are there given are the very best for the bright young American physician, and whether they will serve to arouse in him the eager desire to pursue his further study independently and in new fields. Medical study in Vienna is valuable and will be sought by many physicians. To advise the pretenders is useless and they may be ignored. The second group is made up of men who need no advice; they know their own wants and how to satisfy them. Those of the third group are deriving good from their work, are satisfied and understand conditions. Those of the last group might be spared some disappointment, perhaps, if warnings and advice were given. But it would not always be heeded. Many physicians get more out of the short courses than one would think. And we are not sure but what it is a valuable lesson for a physician to learn by experience, and not by reading about it, just how much there is to a European education, how it can not be obtained ready-made by the mere paying of money and the expenditure of a short time. The weaker man may become discouraged and give up, but the stronger man with the right stuff in him will realize as he would in no other way that a medical education in Europe, as in America, requires time, money and, above all, persistent, hard work, and will prepare to meet these requirements.

THE CANAL ZONE.

The Panama Canal Zone, up to recent years, has been one of the most unhealthy spots on the globe; some would hold that it has had no rival whatever in this gruesome distinction. It has been looked on as a vast graveyard for those not indigenous to the soil who have gone thither. Humboldt, a century ago, after a visit in which he studied the conditions carefully, expressed his belief that the Isthmus must always be cursed by yellow fever and malaria; the former he understood to be caused by the decaying mollusks and marine plants on the beach at low tide, the latter by foul emanations from overrank vegetation. Froude declared, in that superb English of which he was so great a master, that nowhere else on earth was there concentrated in a single space so much foul disease, such a noisome mass of moral and physical abomination. Peculation did much to bring about De Lessep's failure; and since his day charges of corruption against officials have by no means been lacking. But these deterrent factors have been negligible by comparison with the hopeless unhealthfulness of the Isthmus and the territories adjacent to it. It has been said that in the construction of the railroad from Colon to Panama every cross-tie represented the tomb of a workman who labored on it.

Since then has occurred the martyrdom of Lazear, and the self-abnegating work of Reed and Carroll, by which the health of these devoted men was fundamentally impaired and their lives greatly shortened. Their labors and those of Guiteras and Agramonte and the substantial work of Kean in Cuba have established the rôle of the *Stegomyia* as the intermediary in the transmission of yellow fever, and have made the epidemics of "Yellow Jack" which visited our seaboard cities mere hideous memories; no one now fears an invasion of this disease from the tropics.

Such conditions as those described prevailed in the Canal Zone prior to 1902; but Gorgas and his associates have made this region as infection-free as any in these United States, and much more salubrious than a great many. The last case of yellow fever occurred in Panama two years ago. During 1907 Gorgas did not have a case of bubonic plague to deal with; in that year he had but one death from smallpox; he had a 50 per cent. reduction from 1906 in malaria, dysentery, pneumonia and other grave diseases. His death rate in 1907 was more than 31 per cent. lower than that in 1906. In the territory over which he has jurisdiction (the Canal Zone and the cities of Panama and Colon), he has had in his keeping the health of many thousands of men from widely different parts of the earth, engaged in digging through the swamp lands of what has been probably the most deadly region in existence. He has had, during the month of March in 1907, 36,000 employés under observation, with 122 deaths. During the corresponding month of this year he has supervised 43,000 men, with only 45 deaths. The mortality rate of the Canal Zone for March, 1908, was less than that of the city of New York, which is among the lowest, urban or rural, in civilization. The completion of the Panama Canal within the next few years is a certainty. When finished let no one have to be reminded that this epochal work could never have been accomplished had not devoted and zealous men, from Finlay to Gorgas, so magnificently applied the discoveries and resources of medical science.

THE BRAINS OF EMINENT MEN.

When looking up the literature on the higher functions of the brain one realizes how unfortunate it is that so much valuable material is not made use of. Men and women who have exhibited special aptitude and powers in various directions that must, according to all we can at present know or infer, have been correlated with special physical developments, probably macroscopic, of the cerebral cortex, are passing away daily. The knowledge which a study of their brains might impart is, however, through social prejudice, forever lost. One or two generalizations are fairly well established and these are almost *a priori* ones. One is that, generally speaking, the largest brains are those whose possessors are best endowed with intelligence. We may also assume it to be established that this is especially true of those who have been eminent for their achievements in the highest intellectual occupations which may be supposed to call into play and require the development of the most complex and highest mechanisms of the mind. We recognize, too, that a highly-convoluted human brain goes with a higher grade of intelligence as a rule. We know from pathologic observations the location of the special motor and speech centers, and the probable location, in a general way, of the higher intellectual faculties in the prefrontal region, and approximately the location of the sensory functions in other regions. But the physiology of the cerebral convolutions of man in any complete sense is as yet too little known, and especially do we lack the data needed to furnish any correct idea of the structural brain variations connected with the non-pathologic differences observed in different individuals of the same race.

How little has been done is illustrated by the complete series of references given by Dr. E. A. Spitzka in his recent work.[1] He was able to collect the data in regard to only 130 more or less prominent persons, and much of the material was exceedingly incomplete. His own contribution is, however, an important one; four at least of the men whose brains were studied by him had achieved a generally recognized eminence, a fifth would undoubtedly have done so if he had lived, and may, therefore, be put in the same class, while the sixth, if not exactly eminent, was a successful professional man of marked ability. While the material is not large, Spitzka has studied it thoroughly and brought out some striking and suggestive facts, which he briefly summarizes at the end of his pamphlet. One of these is the striking difference in the areas of the cuneus-precuneus regions of the brains of Dr. Leidy and Professor Cope. This difference, according to what we know of the higher functions of the human brain, corresponds to the different characteristics of the two men, Leidy having been especially strong in his power of observation, while Cope, though not defective in observing faculty, was more prominently philosophic and constructive. Another striking result is that referring to the cerebro-cerebellar ratio which Spitzka finds a full unit higher in eminent men than in the average individual, and the preponderance in the former of the commissural fibers as shown by the relative size of the callosum. These facts are very strikingly illustrated by figures and diagrams made from comparison with other material as well as with the brains that form the chief subject of the monograph.

Dr. Spitzka's presentation is a notable one and should be carefully studied by those who have the opportunity of doing similar work. There is, for example, a vast field for such studies in our insane hospitals, which has been too much neglected. The material there is pathologic in a sense, but it will be not the less useful in supplementing observations of more physiologic subjects. Insanity is largely, and we might almost say chiefly, a degenerative and often even a teratologic condition. Usually even in cases in which a direct toxemia may be the exciting cause of the mental breakdown, it is only the more or less defective that succumb. Nowadays when it is the fashion to class the majority of cases under the heads of manic-depressive insanity and dementia præcox, the one an eminently degenerative type, the other a result of developmental stress, it would seem that this proposition could not be well disputed. Yet, up to the present the pathologists have too often given their main attention to histologic changes, neglecting the fact that it is the original functional disabilities as well as, or more than, the structural lesions that cause the symptoms of mental disease. A little more attention to convolutional topography and abnormalities will do no harm.

When there is a chance for the study of brains of individuals, exceptional for ability and achievements or otherwise remarkable, and there should be many such, it should be fully utilized for the general benefit of the race. The larger the selection the better, for otherwise our data may be confused by the frequent exceptions. There are probably many mute, inglorious Miltons and Cromwells as well as hypertrophied cortical organs and special abilities in otherwise only high-class imbecile brains. It is the amount of material that counts in correctly estimating the average. And who can tell how important a bearing a better knowledge in these points may have on practical eugenics?

1. "A Study of the Brains of Six Eminent Scientists and Scholars Belonging to the American Anthropometric Society, Together with a Description of the Skull of Professor E. D. Cope." By E. A. Spitzka, M.D., Professor of General Anatomy, Jefferson Medical College, Philadelphia. Pp. 308, with illustrations. Paper. Philadelphia: American Philosophical Society, 1907.

TUBERCLE BACILLI IN BUTTER.

Although we hear a good deal about the danger of tuberculosis from milk, there is, strangely enough, comparatively little said about the other uncooked dairy products, butter and cheese. Nevertheless, there is

every reason to believe that butter, at least, is an important medium for the introduction of virulent bovine tubercle bacilli into the human alimentary tract. In one of the recently issued circulars of the Bureau of Animal Industry[1] there is a discussion of this topic, together with a report of experimental studies which indicate that butter is likely to be a dangerous article of food when made from the milk of tuberculous cows. Knowing that bacilli are heavier than water or milk, we naturally imagine that they settle to the bottom of the milk when the cream is separated by either centrifugation or natural gravity; but this, unfortunately, is not the case. In experiments made at the Bureau of Animal Industry Experiment Station it was found that tubercle bacilli present in milk soon collect in about equal proportions in the sediment and in the cream, no matter by which method the cream is separated, leaving the skim-milk relatively free from bacilli. Apparently many of the bacilli so adhere to the droplets of cream that they are carried upward in spite of their own higher specific gravity, with the result that the separated cream is much richer in tubercle bacilli than a corresponding quantity of the fresh milk from which it is obtained.

Cornet states that among 1,527 samples of milk examined in European countries 149, or 9.76 per cent., contained tubercle bacilli, while among 775 samples of butter 100, or 12.9 per cent., were positive. Although European cattle are probably more commonly tuberculous than those in America, still the disease is common enough here, and these figures indicate that the butter is if anything more likely to contain recognizable numbers of tubercle bacilli than is the milk.

Of particular importance is the long duration of vitality and virulence of tubercle bacilli in butter. While desiccation and exposure to sunlight destroy them rapidly, the fatty coating of the butter protects them from these deleterious agencies very effectively, while the amount of salt added to butter is not sufficient to kill them. The experiments of Schroeder and Cotton show that even after four and one-half months tubercle bacilli in butter kept at 60° F. were still virulent, apparently about as much so as at the beginning. It would seem probable, also, that butter would serve to protect the tubercle bacilli from the bactericidal action of the gastric juice during their passage through the stomach; and in the intestines, according to the results of certain experiments, tubercle bacilli are most readily absorbed when in an emulsion of fat. Consequently the taking of tubercle bacilli in butter would seem to possess peculiar dangers. As butter is commonly made at central stations from milk collected from numerous sources, the chances of its containing tubercle bacilli would seem to be particularly large, and its transportation to distant markets makes proper control difficult. It is especially important, therefore, that this source of danger should be appreciated by those to whom the public health is entrusted, in order that proper steps for its control may be taken.

1. Tubercle Bacilli in Butter, E. C. Schroeder and W. E. Cotton, Circular 127, Bureau of Animal Industry, U. S. Department of Agriculture.

THE LOUISIANA SYSTEM OF HYGIENIC EDUCATION.

We commented last week[1] on Ditman's suggestion for the establishment of schools of sanitary science. The purpose of the proposed schools is not merely the education in state medicine of those seeking official sanitary appointments, but the adoption of measures looking toward education in sanitary principles, of the medical profession at large, educators, statesmen, etc., and through them of the general public; for on the intelligent cooperation of the public the ultimate success of sanitary legislation must largely depend. A useful auxiliary in this direction already exists in what has been called the "Louisiana System of Hygienic Education." The essential feature of this movement, according to Dr. J. F. Mayer,[2] consists in the holding of "Institutes of Hygiene," under the authority of the State Board of Health, before colleges, high schools, and special institutes. By this means not only is a considerable portion of the populace instructed in the nature and prophylaxis of transmissible diseases, but the movement is further extended by "the perfect correlation of the clergy of all denominations, educators, scientists, and the press, with the health service of the state in its educational efforts." The principle of this scheme has been adopted in France by ex-President Loubet, and in Greece by Dr. Cardamatis. Its benefits, moreover, have been extended, by arrangement between the respective health boards, into adjoining states. The further extension of this movement is much to be desired. It seems desirable, however, as Dr. Mayer suggests, that the educators should be independent officials not engaged also in field work; not only because there is work enough of that kind alone to engage their attention, but also because their teaching is apt to be looked on with suspicion by the ignorant if it emanates from one charged with executing the ordinances of the board.

THE MODERN SCHOOL FOR SCANDAL.

In another column[3] we publish a portion of a forcible editorial from the *Druggists Circular* entitled "Canned Mud," which shows up the discreditable methods used by the "interests" jeopardized by an efficient and effective administration of the Food and Drugs Act in circulating widely to the newspaper press "canned" editorial matter, artfully concocted to undermine, by its ceaseless "drip, drip," even the most firmly established reputation. For some time past and at present these underhand methods are being widely adopted for the purpose of undermining public confidence in Dr. Wiley, chief chemist of the United States Department of Agriculture. The unscrupulousness of these tactics is equalled only by their antiquity. They always have been

1. THE JOURNAL A. M. A., July 18, 1908, 227.
2. Report of the Special Medical Inspector of the Louisiana State Board of Health, 1908, F. J. Mayer, M.D.
3. Pharmacology, page 331.

used by unprincipled persons and presumably always will be. All that can be done is to caution those who may be misled to remember that one can not smoke out a wasps' nest without rousing much buzzing and some stinging.

THE BRITISH DAYLIGHT BILL.

A proposition is again before the British parliament to have the legal workday from April to October begin an hour and twenty minutes earlier than at present. This is to be accomplished by having all the clocks in the United Kingdom set forward eighty minutes. It is asserted that that amount of early daylight is now disused and the loss compensated for by extending the working hours into the evening, to the physical and financial detriment of the workers. There is much to be said in favor of the proposition; man is not naturally a nocturnal animal and sunlight is more healthful than artificial light, besides being less expensive. The old saw, "Early to bed and early to rise makes a man healthy," as well as some other things, was based on a good deal of human experience, and modern conditions have not yet altogether annulled its force. The advocates of the measure can find plenty of arguments and evidence in its favor, especially in Great Britain, where the tendency has been, at least among certain classes, to begin the day's activities later than is the custom in some other countries. In the adoption of standard time in this country some years ago no great difficulty was experienced in changing the clock time—to a less extent it is true—but British conservatism may make the proposed change a more difficult one to accomplish over there.

Medical News

COLORADO.

Personal.—Drs. Robert Levy, Paul Gengenbach, and S. Simon are spending the summer in Germany.

State Society Meeting.—The thirty-eighth annual meeting of the Colorado State Medical Society will be held in Denver, September 8 to 10.

Cerebrospinal Meningitis.—About 200 cases of epidemic cerebrospinal meningitis have occurred at Louisville, Colo., with a mortality of 80 per cent.

Postgraduate Instruction.—The Denver and Gross College of Medicine announces that postgraduate courses of instruction will be given during July and August.

New Jewish Hospital at Denver.—The National Jewish Hospital for Consumptives at Denver has just opened a new building which doubles its former capacity. It now houses 130 patients. The opsonic treatment for tuberculosis will be extensively used under the direction of Dr. Saling Simon. Dr. R. Mogulessky, formerly of New York, is the new bacteriologist. He was appointed on the recommendation of Dr. Knopff. This hospital is non-sectarian and all patients are treated free.

DISTRICT OF COLUMBIA.

Food Inspectors.—Inspectors have been appointed by the health department for the purpose of examining into the cleanliness of all restaurants, lunch-rooms and soda fountains in accordance with a provision by the last congress relative to the sale of food in the District.

Habit-Forming Drugs.—The health officer has recommended that the commissioners urge on Congress the enactment of an amendment to the existing pharmacy law, making it unlawful for any person, other than a registered druggist, physician or veterinarian, to have in his possession certain habit-forming drugs such as cocain, morphin, codein, heroin and chloral, so as to avoid the necessity of proving in each prosecution that such drugs are narcotics.

Health Report.—The mortality record for the week ended July 4, showed 136 deaths. This number is 21 less than occurred the previous week. Of these deaths 70 were white and 66 colored. The number of births reported during the week was 145, of which 95 were white and 50 colored. The contagious disease report showed no new diphtheria cases and a reduction of scarlet fever patients under treatment. Whooping cough cases were increased by one over the number recorded last week.

ILLINOIS.

Care of the Baby.—The State Board of Health has issued a thirty-two page circular on "The Care of the Baby," which is being distributed in all parts of the state. The circular, which deals with the feeding and care of infants, and selection and modification of cows' milk, gives clear, succinct directions to mothers as to the diet and care of the baby, the selection, modification and preparation of his food, and numerous health and comfort hints of especial value in the heated season. A chapter is also devoted to suggestions to dairymen and milk dealers, including the state laws regulating dairying.

Chicago.

Contagious Diseases.—A total of 240 cases of communicable diseases was reported to the department of health during the week ended July 18. To this list measles contributed 58 cases; scarlet fever, 55; diphtheria, 41; whooping cough and tuberculosis, each 31; typhoid fever, 17; chickenpox, 4; smallpox, 1, and minor diseases, 2.

Mortality Report.—During the week ended July 18 there were 536 deaths reported, equivalent to an annual death rate of 12.66 per 1,000. The deaths were 26 more than for the preceding week, and 36 more than for the corresponding week of 1907. Of the decedents 151 were infants under one year of age. Acute intestinal diseases headed the list of death causes was 96, followed by consumption with 66; heart disease with 53; violence (including suicide) with 43; nephritis with 33; cancer with 28, and pneumonia with 21. Sunstroke was responsible for 4 deaths, and tetanus caused one death.

The Babies' Milk.—The department of health has prepared for distribution and posting throughout the districts in which the highest infant death rate is reported the following card of warning, regarding the milk for babies:

LOOK TO YOUR BABY'S MILK!

Feed No Dirty Milk to Your Babies.

See to it that bottles or cans from which your supply is served are clean.

Milk as food for infants should be CLEAN as well as PURE. This means that you should note the condition of milk wagons and depots.

If for any reason you suspect your milk supply, bring sample in original package to the City Laboratory, Fourth Floor, 215 East Madison Street. If the store, dairy, wagon or can is dirty, write us.

DEPARTMENT OF HEALTH,
City of Chicago.

Saving Infant Lives.—According to the figures compiled by the vital statistician of the Department of Health, more than 63,000 infant lives have been saved during the 12 years from 1895 to 1907 as compared with the previous 12 years, the death rate having been reduced from 6.13 to 3.18 per 1,000 of the total population. This decrease has been due principally to the education of mothers in the care of children, especially during hot weather. Notwithstanding this excellent showing, a campaign of education is still more urgently needed at present. Since 1900 there has been an enormous influx of immigration of the Slavic races, and among these people the infant and general mortality is very high. The city council has transferred $10,000 from the contagious disease fund to a special fund for the care of children. On July 20 seventy-five physicians were assigned to duty in those parts of the city, in which, during 1907, the infant death rate exceeded 7 per 1,000. Thus the fifth district, along the west bank of the river, will have 34 medical inspectors, and the fifteenth district, which includes the mouth of the Calumet River, six inspectors. These medical officers will call at every home in the district and tell the parents what to feed their babies and how to care for them. Most of the inspectors selected speak languages other than English, and many are conversant with the Slavic tongues. With the support and help of the clergy, this work should accomplish notable results.

INDIANA.

Protective Association Organized.—The Physicians' and Surgeons' Protective Association of Indiana has been incorporated with a capital stock of $10,000, although the association is

said not to be organized for profit. Its object is said to be to collect information regarding persons with whom practitioners have had dealings, this information to be furnished to physicians entering practice in any town or city in the state. The following officers were elected: President, Dr. John A. Garrettson, Indianapolis; vice-presidents, Drs. James Andrews, Frankfort, and Ellis A. Squier, Frankfort; secretary, Dr. M. Albertson Howard, Indianapolis, and registrar, Dr. Arthur J. Smith, Indianapolis.

Personal.—Dr. Harry D. Hayward, Crown Point, had his left eye removed in St. Luke's Hospital, Chicago, June 12, from injury resulting from being struck in the eye by a golf ball the day before.——Dr. John N. Hurty, secretary of the State Board of Health, has been appointed a director of the National Association for the Study and Prevention of Tuberculosis.——Dr. Mary Widdop, for several years superintendent of the nurses of Lafayette Soldiers' Home, has been made assistant physician in the State Hospital for the Insane, Longcliff, Logansport.——Dr. Francis A. Shoaf, Veedersburg, took poison by mistake, June 15, and was seriously ill for a time.——Dr. James G. Boswick, Mishawaka, has recovered from his recent attack of typhoid fever.——Dr. Harry H. Weist returned from Europe, June 19.——Dr. Golding Chittick, Frankfort, has been commissioned first lieutenant and assistant surgeon in the National Guard.——Dr. Wallace S. Grayston, Marion, was operated on for appendicitis in Chicago, June 2, and has made a good recovery.

KENTUCKY.

Louisville.

Milk Association Organized.—The Babies' Milk Fund Association has just been organized. Dr. Henry E. Tuley is vice-president and Dr. Letchworth Smith, secretary-treasurer. Sufficient funds have been raised to open a milk dispensary by July 15, and additional subscriptions will be asked for from the general public shortly so the work of "Saving the Babies," which is the motto of the association, may be carried on for the remainder of the summer. The plan to be pursued is similar to that in vogue in Baltimore and other cities. Bottles of milk for the individual feedings of the baby will be distributed on the prescription of a physician and modified according to the individual needs of the baby, the parent paying ten cents a day for the twenty-four hour feeding.

Medical Colleges Merge.—The merger of the medical schools of the city now seems an assured fact. Representatives from the University of Louisville Medical Department, the Louisville and Hospital medical colleges and the Kentucky School of Medicine appeared before a meeting of the trustees of the State University of Kentucky, called by the governor in Lexington July 17, and formally made application for the merged colleges to be made the Medical Department of the State University. By a close vote it was decided to postpone action until the December meeting of the board, thus destroying any chance for the medical department of the State University to be started in time for the winter session. Appreciating the importance of the merger, a meeting was called of the members of the faculties of the three schools at the Seelbach Hotel July 18. A resolution was unanimously carried expressing the sentiment that all were in favor of a merger and that a committee composed of two members from each of the three faculties be elected by each faculty to carry out the details of the merger and to report back to the combined faculties as soon as possible. Meetings of the faculties were held at once, members of this committee were elected and the details of the merger will be carried out at once in time to get out a catalogue announcing a merger to the student body of the three schools. Drs. J. N. McCormack and William Bailey, members of the State Board of Health, were elected ex-officio members of the committee in whose hands the details of this merger will be placed. The committee is composed of the following: Drs. James M. Bodine and Joseph B. Marvin, University of Louisville; Drs. Clint W. Kelly and H. Horace Grant, Louisville and Hospital College of Medicine, and Drs. William H. Wathen and Martin F. Coomes, Kentucky School of Medicine.

MARYLAND.

Baltimore.

Deaths.—During the week ended July 18, 60 children under 2 years old died in the city; 35 deaths occurred from consumption, and 2 from pneumonia.

Contagious Diseases.—A case of smallpox was discovered July 6. The patient was sent to the isolation hospital and the other inmates of the house were vaccinated and the premises disinfected.——There were fifteen new cases of scarlet fever during the week ended July 11, with three deaths.

Death from Hydrophobia.—Henrietta Willis, who was bitten on the face by a rabid dog May 23, died from hydrophobia July 16. This is the second death from the disease out of 1,200 cases treated at the Pasteur Institute. The little patient had sixty injections of antirabic serum. There are now 50 cases under treatment in the institution.

Personal.—Dr. Daniel W. Cathell has recovered from his recent illness.——Dr. Fannie Hoopes has returned after taking a special course in Harvard University.——Dr. Harry Friedenwald has been elected president of the Federation of American Zionists.——Dr. John Randolph Winslow will attend the Pan-American Congress, to be held in Guatemala, August 5 to 10.

MASSACHUSETTS.

Diphtheria in Navy Yard.—It is reported that there are several cases of diphtheria among the 200 prisoners at the navy yard in Boston.

Board of School Physicians Re-elected.—The Lawrence Board of Health has re-elected the present board of school physicians for the following year.

Bequests.—The will of the late Hannah M. Stowe of New Bedford provides that one-sixth of her estate, the value of which is not stated, be divided among the Women's Board of Missions of Boston, the Women's Home Missionary Society of Massachusetts, the Ladies' City Mission Society of New Bedford, and St. Luke's Hospital of the same city. According to the will of the late James D. Wright, Worcester, one-third of the residue of the estate, after payment of other bequests, is left to the Worcester Memorial Hospital.

Boston.

Personal.—Dr. H. A. Christian has been appointed Hersey Professor of the Theory and Prwactice of Physic at Harvard Medical School.——Dr. F. H. Thompson, Fitchburg, has been appointed medical examiner of the third district of Worcester County, vice Dr. Herbert H. Lyon, deceased.——Dr. Timothy Leary, Boston, has been appointed medical examiner of Suffolk County.——Dr. Edwin B. Harvey, Westboro, has been appointed a member of the Board of Registration in Medicine.——Dr. Charles W. Milliken, Barnstable, has been appointed medical examiner of the second Barnstable district, vice Dr. Faunce, deceased.——Dr. Joseph V. Meigs, Lowell, has been appointed medical examiner of the eighth Middlesex district, vice Dr. Irish, deceased.

City Opens Camp for Consumptives.—Fifty consumptives, too ill to be benefited by treatment at the Massachusetts General Hospital, will be transferred to the new home of the Boston Consumptives' Hospital on the Conness estate, Mattapan, and enter on treatment which it is hoped will culminate in their improvement to an extent that will warrant their entrance into the state institution. They will go to the camp in the morning and return to their homes at night. Those who are given preference in treatment are patients whose dependents, circumstances and health most demand it. The new hospital and its location are picturesque as well as healthful, and the patients will be able to remain throughout the winter. The building is 125 feet long and contains dining-room, kitchen, examination and rest rooms, and has a spacious veranda facing to the south. It is designed to accommodate 150 patients, and besides the medical staff there will be a sufficient number of servants in attendance.

NEW YORK.

School of Hygiene.—Commissioner Eugene H. Porter of the state department of health has announced that negotiations have been completed with Cornell University for the establishment of a school of sanitary science and public hygiene. The course will be opened at Cornell October 8, with an address by President Schurman.

Vital Statistics.—The monthly bulletin of the New York state department of health gives the following interesting statement:

During the past month the total number of deaths reported in New York State was 12,681, being a decrease over the five years' average for the same month, which is 13,141. This gives a death rate of 17.8, the birth rate being 24.6 per 1,000. When we come to compare the city death and birth rates with those of the country we find in cities the death rate to be 18.7 and the birth rate 25.5; while in the rural districts the death rate is 16.6 and the birth rate 16.2. Both death rate and birth rate are higher in the city than in the country, but in the country the birth rate is lower than the death rate, the reverse being the case in the cities.

Cities which reported more deaths than births for this month are Albany, Troy, Auburn, Newburgh, Cohoes, Middletown and

Watervliet. The highest annual death rate is shown by Watervliet, which is 25.3 per 1,000. The lowest death rate is shown by Oneida, which is 6.8 per 1,000. Yonkers shows the highest birth rate (41.9), and the lowest birth rate is shown by Troy (10.2) and Albany (10.8).

New York City.

Roof Playground.—Plans have been filed with the building department providing a roof playground for the children in Roosevelt Hospital; it will be 29 by 39 feet, and fills a much-needed want.

Guarding Against Lockjaw.—Commissioner Darlington announced that a large supply of tetanus antitoxin had been distributed among the various boroughs and could be had by individuals and hospitals on request.

Laying Off Health Inspectors.—Dr. Bensel, superintendent of the sanitary bureau of the health department, announced that 100 inspectors had been laid off July 1, in order that the appropriation for the bureau should not show a deficiency. Sixty were let go in Manhattan, 30 in Queens, 5 in the Bronx, and 5 in Richmond.

To Keep Beaches Clean.—The authorities of New York City have assured the Governor of New Jersey that they will cooperate with that state in endeavoring to prevent the pollution of the Jersey coast by the dumping of garbage and refuse at sea. The dumping of street sweeping and ashes at sea will be permanently discontinued. Garbage has been dumped at sea by private collectors and New York has promised to police the bay and stop this also.

Infant Mortality Increasing.—The conference on summer care of babies gives out the notice that for the six weeks, June 1 to July 11, there was an increase over 1907 of 50 per cent. for Manhattan and the Bronx, 80 per cent. for Brooklyn, 133 per cent. for Queens, 55 per cent. for Richmond, 66 per cent. for all boroughs, this referring to deaths from diarrheal diseases of infants under one year of age. For this six weeks' period diarrheal diseases caused 763 out of 1,924 deaths.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending June 27, 406 cases of tuberculosis with 168 deaths, 286 cases of diphtheria with 28 deaths, 658 cases of measles with 19 deaths, 360 cases of scarlet fever with 30 deaths, 58 cases of typhoid with 7 deaths, 17 cases of whooping cough with 4 deaths, 3 cases of cerebrospinal meningitis with 2 deaths, and 116 cases of varicella, a total of 1,904 cases and 258 deaths.

June Death Rate.—The street cleaning commissioner has made a special effort to do thorough work and believes the reduced death rate for the month of June to be due to his efforts. The reports show that the death rate for June, 1907, was 17.89 per 1,000 in Manhattan, 18.01 for the Bronx, and 15.84 for Brooklyn; for 1908 the rate per 1,000 for Manhattan was 14.57, for Bronx 15.35, and for Brooklyn 14.18. The report for the first two weeks in July, however, showed an advance due to the hot weather.

Summer Hospitals Overcrowded.—The floating hospital of St. John's Guild has carried over 8,500 patients since it began its daily trips to Staten Island in June. This is nearly 3,000 more than for the same time last year. The Sea Side Hospital at New Dorp has also been overcrowded, having 1,000 patients, whereas it had only 500 at this time last season. The Health Home which the Children's Aid Society maintains at Coney Island has proved inadequate to the demands made on it. The normal capacity is 250 mothers and children. The hot spell has compelled the home to take in 350 more, thus overcrowding has made the need for financial aid very urgent.

Personal.—Dr. Albert Warren Ferris, president state commission in lunacy, and Dr. Adolph Meyer, director of the pathologic institute of New York state hospitals for the insane, sail this month for Europe.——Dr. Carl Beck has been decorated by the King of Sweden with the Order of the North Star.——On July 17 a reception was given Dr. and Mrs. Louis Livingston Seaman of New York City at the Peers' Club, Tokyo, under the auspices of Baron and Baroness Ozawa. During Dr. Seaman's stay in Japan he received three decorations: two given by the Japanese Red Cross Society and one, the "Rising Sun," conferred on him by the emperor.——Dr. William P. Spratling, superintendent of the Craig Colony for Epileptics, Sonyea, has been made professor of physiology and nervous diseases in the College of Physicians and Surgeons, Baltimore, vice Dr. George J. Preston, deceased.——Dr. and Mrs .M. Allen Starr and Dr. Charles L. Dana, New York City, sailed for Europe July 15.——Dr. Floyd M. Crandall, New York City, and his mother were injured on the White Mountain express, July 15.

Rules for Fly Time.—The Board of Health has been asked by the chairman of the water pollution committee, in furtherance of the campaign of the Merchants' Association against the house fly, to distribute among householders, hotel and restaurant proprietors, etc., cards on which appear the following rules and comments:

Keep the flies away from the sick, especially those ill with contagious diseases. Kill every fly that strays into the sick-room. His body is covered with disease germs.

Do not allow decaying material of any sort to accumulate on or near your premises.

All refuse which tends in any way to fermentation, such as bedding, straw, paper waste and vegetable matter should be disposed of or covered with lime or kerosene oil.

Keep all receptacles for garbage carefully covered and the cans cleaned or sprinkled with lime or oil.

Keep all stable manure in vault or pit screened or sprinkled with lime, kerosene or other cheap preparation.

See that your sewerage system is in good order; that it does not leak and is up to date and not exposed to flies.

Pour kerosene into the drains.

Cover food after a meal; burn or bury table refuse.

Screen all food exposed for sale.

Screen all windows and doors, especially the kitchen and dining room.

Burn pyrethrum powder in the house to kill the flies.

Don't forget that if you see flies their breeding place is in near-by filth. It may be behind the door, under the table or in the cuspidor. If there is no dirt and filth there will be no flies.

If there is a nuisance in the neighborhood write at once to the Health Department.

It is confidently believed that this method of following up the impression made last year, not only on the people of New York, but on those of all sections of the country, will result in a great diminution of the number of deaths from the hot-weather diseases now known to be transmitted by flies.

NORTH CAROLINA.

Personal.—Dr. Hubert A. Royster, Raleigh, has returned home after a trip in the west.——Dr. John C. Walton, formerly of Reidsville, has opened a sanatorium in Richmond, Va.

Abbatoir for Charlotte.—Charlotte municipal health authorities are providing for the erection of a complete modern abattoir which will be operated under the supervision of the city's sanitary officers.

New Hospital for Raleigh.—The contract for the new Rex Hospital at Raleigh has been let. It will be of concrete, two stories high, with basement, and is to cost about $47,960. It is hoped to have the building ready for occupancy in ten months.

No Legal Prescriptions of Liquor.—Durham, by a majority vote of its aldermen, has refused to renew the drug-store license to sell liquor on physicians' prescription, thus making it impossible, legally, to have a prescription containing liquor filled in the city.

Personal.—Dr. Laurie C. Keerans, Charlotte, announces that he will confine his practice to surgery and consultation work.——Dr. Hassell Brantley, Spring Hope, has moved to Norfolk, Va., and will confine his practice to diseases of the eye, ear, nose and throat.

Licenses of Liquor-Selling Druggists Not to Be Renewed.—The board of aldermen of Charlotte recently voted not to renew the license required of all druggists who sell whisky. According to the prescription files of the various drug stores of the city it appears that during the past year more than $50,000 worth of alcoholics have been dispensed on physicians' prescriptions, and professional sentiment is opposing it. A recent meeting of the Mecklenburg County Medical Society adopted resolutions commending the action of the aldermen in refusing the Charlotte druggists whisky license.

PENNSYLVANIA.

Typhoid at Hastings.—Typhoid fever is reported to be epidemic at Hastings, Cambria County, where 21 new cases were reported last week.

University Name Changed.—By a decree handed down July 11, the name of the Western University of Pennsylvania was changed to the University of Pittsburg.

Medical Day.—Medical Day was celebrated at Willow Grove Park July 22, by the following county medical societies: Berks, Bucks, Chester, Delaware, Lehigh, Montgomery, Northampton and Philadelphia. Dinner was served at 4 p. m., and the following addresses were made: Address of welcome, Dr. J. C. Attix, Willow Grove park physician; "Philadelphia County Medical Society," Dr. Albert M. Eaton, president; "Fraternalism in Our Ranks," by Dr. William L. Estes, president of the Pennsylvania State Medical Society, and "The Importance of Medical Organization," by Dr. Joseph D. Bryant of New York City.

Philadelphia.

Public Baths.—The report of the city public baths for the first five days of July shows that 525,000 persons visited the baths in different sections of the city. For the first week the total number of visits made aggregated 670,297.

Improving Rush Hospital.—Extensive changes are in progress at the Rush Hospital for Consumption and Allied Diseases. The new wing, which was started several months ago, will be completed by May next. This structure will be six stories high and will contain 40 individual rooms, which will increase the capacity of the hospital to 70 beds. The cost of this addition will be $125,000.

New Lutheran Hospital.—Plans have been drawn and a charter has been secured for the erection of the Lutheran Hospital. The following officers have been elected: President, H. C. Miller; vice-president, C. F. Boyer; secretary, J. H. Brandt; treasurer, P. K. Erdman; attorney, James Strong; chairman on committee on site, ex-Judge Dimner Beeber; chairman of committee on by-laws, Dr. Allen J. Smith.

Cornerstone of New Hospital Laid.—The cornerstone of the new building of the Frederick Douglas Memorial Hospital and Training School was laid with appropriate ceremonies June 28. Judge W. W. Wiltbank of the local court was the principal speaker. The new building is to be a four-story brick structure to cost $75,000. The Frederick Douglas Hospital was founded in 1895 and it is the first hospital to be established in Pennsylvania by the colored race.

Medical Inspectors' Work for Summer.—It has been announced that the work of the medical inspectors during the summer months will be devoted to the fight the city and state are making against tuberculosis. The inspectors will visit the homes of persons affected with tuberculosis and impart such knowledge and information as will aid in lessening the danger of contagion and all sanitary laws will be rigidly enforced. The department will also institute means of relief for all sufferers.

Protecting Meat Supply.—The new regulation of the Board of Health prohibiting the slaughtering of cattle on Sundays and between the hours of 6 p. m. and 6 a. m. on other days, was placed in operation July 1. This action, it is thought, will safeguard the city's meat supply because of the inability of the health department to have Sunday and night inspection of the abattoirs made. The failure of any individual or firm to observe this regulation will be followed by revoking the license of the abbattoir.

Hospital Reports.—The report of the Polyclinic Hospital for June shows that 138 patients were admitted to the wards and 1,823 new patients were treated in the dispensary. The total number of visits to the out-patient department was 7,954, and 92 patients were treated in the accident ward.——The report of the Howard Hospital for the month shows that 70 patients were admitted and that 820 new patients were in the dispensaries; 216 individuals were treated in the accident ward and 3,585 prescriptions were compounded.——The report of the Presbyterian Hospital for the same period shows that 203 patients were discharged and 168 new patients were admitted to the institution. The total number treated in the dispensary aggregated 1,882.

Health Report.—The total number of deaths reported for the week ending July 18 was 517, 264 males and 253 females, a decrease of 68 from the previous week and an increase of 86 over the corresponding week of last year. The principal causes of death were: Typhoid fever, 6; measles, 4; pertussis, 10; diphtheria, 3; consumption, 48; cancer, 19; diabetes, 5; apoplexy, 12; heart disease, 42; acute respiratory, 22; enteritis, 127; Bright's disease, 25; premature birth, 18; congenital debility, 14; old age, 7; suicides, 5; accidents, 18, and marasmus, 15.——There were 81 cases of contagious diseases reported, with 9 deaths, as compared with 119 cases and 14 deaths, reported in the preceding week.

The Samuel Gross Prize.—It is announced that essays will be received in competition for this prize until Jan. 1, 1910. The essays must be written by a single author, in the English language, and sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 South Thirteenth Streeet, Philadelphia." Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer. The prize is awarded every five years to the writer of the best original essay, illustrative of some subject in surgical pathology or surgical practice, founded on original investigations, the candidates for the prize to be American citizens.

Tuberculosis Crusade.—According to a report of the bureau of health the decrease in mortality from tuberculosis for the six months of this present year was 0.078. The health department is pleased with the increase of 32 per cent. of cases reported, showing that the physicians are more interested in reporting tuberculosis cases. For the first six months of this year 3,038 cases were reported, with 2,090 deaths, as compared with 2,304 cases and 1,295 deaths reported in the previous year. A number of deaths from tuberculosis of the lungs per 1,000 population, for the decade ending 1890 was 2.95; for the decade ending 1900, 2.27, and for the period from 1900 to 1908, 2.14. The department shows that this state leads the United States in the percentage of tuberculosis. Since Jan. 1, 1903, this city has spent $417,948.01.

Charitable Bequests.—By the will of the late William W. Farr, the following institutions have been benefited: The Women's Homeopathic Hospital, $19,000; Presbyterian Home for Widows and Single Women, $50,000; Presbyterian Orphanage, $5,000; Pennsylvania Institution for the Blind, $10,000; Pennsylvania Hospital, $5,000; Jewish Hospital, $5,000.——The will of the late William Pabst bequeathes $5,000 to the German Hospital to endow the William Pabst free bed; $300 to the Women's Homeopathic Hospital; $500 to the Lutheran Orphanage; and $300 to St. Luke's Orphan Asylum.——The will of the late Catharine O'Donnell bequeathes $25 each to the following institutions: Little Sisters of the Poor, St. John's Orphan Asylum, St. Joseph's Home for Boys, and St. Vincent's Home.

Personal.—Dr. Charles W. Haughton was seriously injured while removing his automobile from a freight car in Atlantic City, July 16.——Dr. Charles B. Warder has been operated on in Stetson Hospital for appendicitis.——Drs. James Tyson, Joseph Farley, Ida E. Gaston, Irvin A. Friese, Milton B. Hartzell, Howard F. Hansell, J. William White, John G. Clark, F. F. Simpson, Paul J. Sartain, S. Lewis Ziegler, John B. Deaver, H. C. Welch and H. K. Hill have sailed for Europe.——Dr. Charles L. Leonard sailed July 16 for Europe, to attend the meeting of the British Medical Association at Sheffield and the International Congress of Electrology and Radiology in Amsterdam.——Dr. C. E. G. Shannon was operated on in Jefferson Hospital for appendicitis July 6.——Drs. John H. Jopson, George C. Stout, J. W. Robinson, W. C. Posey and C. A. Currie have sailed for Europe.——Dr. B. F. Stahl was operated on in St. Agnes Hospital for appendicitis July 4.——Dr. Walter Strong, Dr. Joseph S. Gibbs, Dr. G. Oram Ring and Dr. Judson Daland have gone to Europe.——Dr. J. L. Borsch of Paris, France, is visiting this city.

WISCONSIN.

Left Large Estate.—The late Dr. William H. Earles left an estate estimated to be worth half a million, and in his will requests his trustees so to arrange the estate as to continue the Milwaukee Medical College, if it be possible.

Tuberculosis Dispensary Opened.—The Free Medical Dispensary for tuberculous patients on the South Side was formally opened May 11. The officers of the Milwaukee Society for the Care of the Sick, under whose auspices it was arranged, acted as hostesses.

Personal—Dr. Victor H. Bassett, Milwaukee, has been chosen city bacteriologist of Savannah, Ga.——Dr. Elmer L. S. Fletcher, Eau Claire, has moved to Eugene, Oregon.——Dr. Francis A. Stirn, Cudahy, was shot and seriously wounded by a patient, who was presumably insane, June 19.——Dr. U. O. B. Wingate has removed from Milwaukee to Fox Lake.

Decision Against State Medical Board.—After two days' argument by counsel, Judge Ludwig, Milwaukee, is reported to have directed a verdict in favor of the defendant in the case of the state against Dr. Henry A. Schmidt. The action was a test case brought by the State Board of Medical Examination to annul the certificates of about 120 practitioners who secured their certificates of registration without a medical college diploma, because they were practicing prior to the organization of the board in 1897. The attorney for the state contended that the defendant did not have legal qualifications at the time the certificate was granted, and that it was secured by misrepresentation and through error. The judge decided, however, that the action involved was simply on the construction of the law and that the defendant had legal qualifications to hold his certificate. The case will be appealed to the supreme court.

WASHINGTON.

Seattle Births and Deaths.—During June there were 308 births against 255 in the same month of 1907. Deaths in June, 1908, numbered 153, compared to 143 in June, 1907.

Sanitary Squad Busy.—The health department has already destroyed by burning 300 buildings condemned as insanitary. About an equal number have been condemned and will be destroyed as fast as possible.

Personal.—Dr. L. H. Wood, Ellensburg, has fallen heir to a fortune of about $300,000 by the death of an uncle in Germany.——Dr. Fonda Nadeau, Seattle, has gone to Europe for a six months' trip.——Dr. James Shannon has returned to Seattle from abroad.

Northwest Organization.—At the meeting of the Oregon State Medical Association recently held in Portland, Dr. R. C. Coffey suggested a Northwest organization of physicians, one strong medical college for the three states of Washington, Idaho and Oregon, and one medical journal. The association will meet next year at Seattle during the Alaska-Yukon-Pacific Exposition.

GENERAL.

Confederate Medical Officers Meet.—The eleventh annual convention of the Association of Medical Officers of the Army and Navy of the Confederacy was held in Birmingham, Ala., June 9-11. The following officers were elected: Dr. Jones C. Abernethy, Birmingham, Ala.; Drs. William F. Beard, Shelbyville, Ky.; Edwin D. N. Newton, Athens, Ga.; George M. Burgett, Lenoir City, Tenn., and William H. Barnes, Homewood, Miss., vice-presidents, and Dr. A. A. Lyon, Nashville, Tenn., secretary.

Health of the Philippines for the First Quarter of 1908.—The official report of the Bureau of Health for the first quarter of 1908 states that a considerable increase in the mortality is shown as compared with the same period in 1907. This is due to the presence of cholera and smallpox. Deaths from disease occurred as follows: Typhoid, 30; smallpox, 11; cholera, 156; dysentery, 85; beriberi, 155; pulmonary tuberculosis, 272; general tuberculosis, 15; meningitis, 160; convulsions, 531; tetanus, 43; acute bronchitis, 217; chronic bronchitis, 124; bronchopneumonia, 23; chronic diarrhea, 34; diarrhea and enteritis (in patients over 2 years), 57; infantile debility, 157.

Far Eastern Association of Tropical Medicine Formed.—The fifth annual meeting of the Philippine Islands Medical Association was held in Manila, February 26-29. Eleven delegates were present from far eastern countries and formed the Far Eastern Association of Tropical Medicine. This association is to meet biennially in one of the countries entering into the agreement, the first meeting to be held in Manila in 1910. The association has for its object the closer union of medical men and the advancement of the medical profession in far eastern countries, and the gradual dissemination of hygienic knowledge among the native peoples. The officers elected were: President, Dr. Paul C. Freer, Manila; Secretary-Treasurer, Dr. Francis Clark, Hong Kong.

Effects of the Opium Law.—Dr. Victor C. Heiser, Director of Health for the Philippines, states in his official report that on the prohibition of the use of opium becoming absolute in the island except for medical and scientific purposes, the number of habitués seeking treatment has enormously increased. The care of these unfortunates has thrown much additional work on the Board of Health. Several wards of the insane department at San Lazaro Hospital were set aside for them and Dr. Heiser states that though unlimited patience is required at first they soon become satisfied with their surroundings, and that the majority really desire to be cured. Arrangements are now being made with the provincial board of Cebu for the use of part of the provincial carcel as a hospital for the use of opium habitués and as soon as this is accomplished facilities will be available for such treatment at Manila, Cebu or Iloilo. Free transportation is provided to and from the patients' homes.

Pan-American Congress.—The Fifth Pan-American Medical Congress will be opened in a formal way by the president of the Republic of Guatemala on the evening of August 5, at which session the official representatives of the country and those of the other American republics will be present. The papers are principally on questions of general and tropical medicine, hygiene and sanitation, both of civil and military character, and general surgery, the consideration of the different remedial agents used in southern countries, and papers on the different specialties. There will probably be a section in medicine, including general, internal and tropical diseases, with perhaps children's diseases, nervous and mental diseases and therapeutics; a surgical section, including general and abdominal surgery, gynecology, anatomy and obstetrics; a section on eye, ear, nose and throat diseases; a section on hygiene, demography, military sanitation and epidemiology; and other sections, as the general committee sees fit. It is said that the boats of the United Fruit Company, leaving New Orleans, are very commodious and comfortable; that the new railroad from Porto Barrios on the gulf to the capital of Guatemala is an excellent one; that the time chosen for the congress is the period known as the "cunicula," when it is warm but not raining. Guatemala City is situated on a plateau one mile above the sea level, and is said to be cooler than our middle western states in summer.

FOREIGN.

Italian Medical Senators.—Among the recently elected senators in Italy are five well-known physicians connected with various universities: G. B. Grassi, professor of comparative anatomy at Rome, the well-known authority on malaria; A. Carle, professor of surgery at Turin; P. Foa, professor of pathologic anatomy at Turin; G. D. Novara, professor of surgery at Genoa, and G. Paladino, professor of physiology at Naples.

Medical Historical Exhibition at Stockholm.—The Swedish Medical Association is to celebrate its centennial next October, at Stockholm. A special committee is making great efforts to have a notable collection of historical medical portraits, medals, printed and manuscript works and an antique apothecary shop as features of the celebration. The committee includes some of the editors of *Hygiea*, the official organ of the Swedish Medical Association, which issues an appeal for all to bring forth their historical relics, etc.

Memorial to Botkin.—A life-size statue of S. P. Botkin, 1832-1889, was unveiled in the grounds of the Military Medical Academy at St. Petersburg on the eighteenth anniversary of his death, May 25. In the memorial address Sirotinin stated that of the seventy pupils who worked under Botkin's direction more than half have become professors at various universities. Botkin founded in 1869 and maintained the Russian *Archives for Internal Medicine*, and in 1880 founded the *Weekly Clinical Gazette*, better known as *Botkin's Gazette*, which became very popular.

The Koch Endowment.—Sums have been received to date amounting to a total of $225,000, and the personnel of the board of eleven managers has been officially announced at Berlin. The aim of the foundation is to supply funds to be applied in the crusade against tuberculosis as R. Koch may direct. A number of German cities have appropriated sums ranging from $100 to $2,000 to add to the fund, and local medical societies and private individuals of all classes are also contributing. A gift of $5,000 or more entitles the donor to special privileges, and the sum is called by his name as a special fund.

Awards for Science.—The Prussian Academy of Sciences has recently appropriated nearly $10,000 for scientific purposes. Among the beneficiaries is M. Rothmann, Berlin, who was given $125 to further his research on the functions of the hemispheres of the brain. W. A. Nagel, Berlin, was given $250 to further his research on acoustic and phonetic phenomena; A. Lohmann, Marburg, $250 to aid his research on the ear. The central committee working on the international nomenclature for the central nervous system was also given $250, and $350 was applied for the purchase of the radium left by the late Prof. O. Lassar.

Death of Medical Missionary.—The death is reported from Umbundus, Angola, Africa, of the Rev. William Fay, B.A., B.D., who, while not holding a medical degree, had, nevertheless, like so many other missionaries, a large practice among both whites and blacks. The difference between Mr. Fay and many other non-medical missionaries, according to a correspondent of the *Journal of Tropical Medicine*, is that he practiced medicine scientifically. From the same source we learn that Mr. Fay spent three months of his last furlough but one at the London School of Tropical Medicine, and that it was he who confirmed the finding of human trypanosomiasis in the Benguella hinterland.

LONDON LETTER.

(*From Our Regular Correspondent.*)

LONDON, July 11, 1908.

The Daylight Saving Bill.

When Mr. Robert Pearce's "daylight saving bill" was brought into parliament it was generally regarded as a joke. But since then many people have been converted to the idea and the select committee of the house of commons has now issued a remarkable report in favor of it. Instead, however,

of advancing the clock 80 minutes by an alteration of 20 minutes on each Sunday in April with a corresponding retrogression in September, the committee proposes an advance of the clock by one hour at 2 a. m. on the third Sunday in April, with a corresponding retrogression in September. For all scientific purposes, such as astronomy and navigation, Greenwich mean time will be used as at present. By this plan a saving of 153 hours of daylight will be effected as against 210 hours by Mr. Pearce's bill, but the plan has the advantage of greater simplicity. The committee has found that the following benefits would be gained: 1. The usual hours of work and leisure would be shifted nearer to sunrise. 2. The greater use of daylight for recreative purposes would be promoted. 3. The use of saloons would be lessened. 4. The training of the territorial army would be facilitated. 5. The physique, general health and welfare of all classes of the community would be promoted. 6. The commercial, industrial and domestic expenditure on artificial light would be reduced.

Poisoning by Anilin Oil.

A remarkable case of poisoning by anilin oil is reported from Manchester. A workman splashed a quantity of the oil over his clothes while opening a cask, and went on working without changing. The oil was absorbed by his body, he developed severe symptoms of anilin poisoning and died in a short time.

Prosecution of a Quack.

The activity of the authorities in the prosecution of quacks continues. The latest example is furnished by a man named Napoleon Hirschfield, who was making $7,000 a year by sending bottles of medicine all over the country. He was charged at Brighton with obtaining $13 by false pretenses from a man. According to the evidence of the chief constable, he took rooms at a house and advertised in the papers as follows: "Rheumatism of all kinds and rheumatoid arthritis cured. A lady knows of a wonderful treatment which has cured when all else failed. Sufferers may receive particulars by sending stamped addressed envelope to Mrs. Clarke, Teignmouth." Letters received by this person were forwarded to the prisoner, who wrote to the applicants stating that their cases had been recommended to him and asking particulars as to length of suffering, whether joints were swollen, etc. When answers were received he asked for payment and directed his clerk to make up a "treatment" and send it to the applicants. Almost invariably the sufferers wrote that they were not much, if any, better. Additional treatment was sent as long as the price charged was forwarded, but when money was not forthcoming the prisoner threatened legal proceedings. The prisoner's clerk said that he was ordered to make the preparations by filling up a little glass with turpentine and then coloring it red, after which cayenne pepper was added. When complaints were made that the preparations caused blisters the cayenne was omitted. On being arrested the prisoner said that he did not know that he was doing wrong. He had been curing people for twenty years of rheumatism and had cured himself. The chief constable said that his books showed a profit of $7,000 a year. He was remanded on bail.

BERLIN LETTER.

(*From Our Regular Correspondent.*)

BERLIN, June 24, 1908.

The Success of Preventive Medicine.

However unsatisfactory the results of the specific treatment of infectious diseases may be, the morbidity and mortality of these diseases taken as a whole show almost uniformly a gratifying reduction. Especially for the acute infections this progress depends on the improvement in diagnosis and hygiene. This appears very plainly in the fight against typhoid fever in western Germany. In this region there existed for many years a high rate of sickness and deaths from this disease, and all attempts to lower it were without success, until it was determined to investigate, according to a carefully worked out and systematic plan, the individual disease foci of typhoid and the method of its spread. In carrying out this plan Robert Koch cooperated in a prominent way and, as in most cases, he succeeded in achieving results. By following every case of typhoid to its original source it was possible to eliminate the focus of the disease. Among these foci a great rôle is played by the so-called bacilli carriers, that is, individuals who, having experienced an attack of typhoid fever, still harbor in their intestinal canal typhoid bacilli and eliminate them in the stools. These persons are regarded as healthy, but are always in a position to convey the disease in a greater or less degree to other people by the germs which are excreted and which, by uncleanliness, contaminate drinking water, milk, etc.

The Campaign Against Tuberculosis.

A reduction of morbidity and mortality has been shown not only for acute infections, but also for the chronic. How greatly the mortality from tuberculosis has been reduced is strikingly shown in an address recently delivered before the Berlin Medical Society by B. Fränkel, a most careful investigator in this field. In 1886, 88,283 persons died of tuberculosis in Prussia; in 1906 only 64,459, that is, 17.26 per 10,000 inhabitants, instead of 31.14 in the year 1886. In 20 years the mortality from tuberculosis has undergone a reduction in Prussia of 13.88 per 10,000. As Fränkel points out, this remarkable reduction of the tuberculosis death rate coincides very closely in time with the discovery of the tubercle bacillus (1882), and with the introduction of the social legislation which was referred to in a former letter. Fränkel is of the opinion that industrial insurance has had a good influence in a social as well as in a therapeutic way, while the discovery of the exciting cause of the disease has made it possible to begin the fight against the disease at an earlier stage. Fränkel attributes special importance in the campaign against tuberculosis to the sanatoria which have become extraordinarily prevalent in Germany. According to the last business report of the German central committee for the campaign against tuberculosis, there are in Germany at present 99 popular sanatoria for adults affected with disease of the lungs. These have 10,539 beds, 6,500 for men and 4,039 for women; in addition there are 36 private sanatoria with 2,175 beds, so that in all, 12,714 beds for adult tuberculosis patients are available. For children with pronounced tuberculosis there are 18 sanatoria with 875 beds; besides there are 73 institutions, with 6,348 beds, in which are received only "scrofulous" children and those who are threatened with tuberculosis.

According to the business report of the German central committee, 31,022 insured persons were treated in the sanatoria during a total of 2,312,850 days of care, at a cost of 11,483,033 marks ($2,755,928). On an average, each person treated received 75 days of care at a cost of 370.16 marks ($88.84) or 4.96 marks ($1.19) per person for each day of care.

There is still some discussion among practicing physicians regarding the value of the popular sanatoria for the fight against tuberculosis, and there are not a few of the profession who are very skeptical, while others hold a more favorable opinion regarding the results of sanatorium treatment, but regard the cost as relatively too high. A conclusive judgment respecting this important question can be reached only after some time. Meanwhile it is worthy of note that, according to a statistical report from the imperial insurance office, of the persons treated for tuberculosis in 1902 and controlled by investigation five years later, the successful result established at the time of discharge was still present in 42 per cent. of the cases, and in 40 per cent. of the men alone; 20 per cent. of the total were invalid or dead.

Aside from the actual tuberculosis sanatoria, the so-called forest recreation stations (*Wald-Erholungsstätten*) are effective in the cure of tuberculosis and the fight against the disease. Of these there are about 80 in which those only slightly affected or convalescent pass the day and return to their homes at night. Besides these, there are in Germany at present 182 places for the information and care of tuberculous patients (*Auskunfts- und Fürsorge-Stellen für Tuberkulöse*) equivalent to tuberculosis dispensaries in which the patients and their families are advised and treated as ambulatory patients and by which the condition of their dwellings and their nutrition are kept under constant supervision, and similar philanthropic measures are carried out.

Of late forest schools for children have been established, in which the instruction is given in the woods, and the sick children have the opportunity during their schooling of being placed in the best of air. There are three such schools at present. Quite recently the attempt has been made to include lupus in the campaign against tuberculosis and under the egis of Althoff, the former "ministerial director," who in this, as in so many other directions, has been a pioneer, a commission for the campaign against lupus has been established by the German central committee, and several eminent experts have been appointed.

The Virchow Monument.

The tragico-comic incident of the Virchow monument seems to have entered on a new phase. According to a newspaper report, at the last meeting of the monument committee, the mayor proposed to separate the allegorical group from the monument and install the group in some park. The sculptor is to be required to make another monument which shall consist of a statue of Virchow himself. In this way, at any rate, Virchow will receive his monument at last.

Pharmacology

THE BROADER AIMS OF THE COUNCIL ON PHARMACY AND CHEMISTRY.

TORALD SOLLMANN, M.D.

Member of the Council, Professor of Pharmacology and Materia Medica at the Medical Department of Western Reserve University.

CLEVELAND, OHIO.

(*Continued from page 237.*)

XVIII. PROTECTION AGAINST SUBSTITUTION.

Frequently—all too frequently—we are treated to the announcement that some druggist has been detected in the act of substitution; sometimes the entire pharmaceutical profession of a large city is thus arraigned. Manufacturers who demand extravagant prices for their products are especially loud in their denunciations, and adopt all sorts of devices for their "protection."

Naturally, these reports and accusations and rumors are often exaggerated. In some cases, the "substitution" is merely technical, or is not substitution at all, as in the so-called "investigation" of antiseptic powder, by which Mr. Tyree of Washington has recently tried to make capital. On the other hand, there is no doubt that substitution does exist, and will continue to exist, in spite of laws and statutes, so long as it is profitable. Manufacturers of the type of Mr. Tyree, set the example when they "substitute" whatever they please for the formula which they advertise; they tempt it when they exact unreasonable profits. Physicians point the way when they are lured by detail-men into prescribing equivalent, but ever-changing "brands" of the same product. Some "physicians" who belong by rights to another "profession," almost force the druggist to substitute when they deprive him of his legitimate pay by exacting a "percentage" on their prescriptions—a malpractice that is not as dead as it should be.

All this is in the way of explanation, not of excuse. The way of the pharmacist is beset with temptations—but this is the more reason why he should not yield. The public is obliged to trust pharmacists and physicians more than other men. Professional pride and tradition, and even enlightened self-interest, demand that this confidence should not be abused. Unfortunately, the profession of pharmacy is perhaps the least concern of some who deal in drugs; and with them the immediate profits of substitution outweigh all other considerations. The law should deal with these in such a way that they could no longer abuse the public, and if the law neglects its duty, the physicians should see to it.

The profession of pharmacy, in the highest sense, is not quite extinct; and the right sort of local medical society should have little trouble in ascertaining which of the local pharmacists are reliable, and it should make the information effective. The individual physician should have the courage of his convictions, and should unhesitatingly advise his patients against patronizing druggists whom he has good reason to distrust. If he considers himself so low in the estimation of his patients that he would not recommend a druggist for fear of the suspicion that he accepts the infamous percentage, then he owes it to his self-respect to teach the patient better things. But he should not invite that contemptible suspicion by accepting any gratuities from the pharmacists—not even that common but most petty "tip," free prescription blanks.

The protection afforded by such a direct attack on the substitution evil must be much better than the numerous proprietary devices. Their very number proclaims them ineffective, and they are all open to abuses. As I have pointed out in a previous chapter, the "original package," the "coined name," the distinctive monogram, even the distinctively shaped bottle—these are all much more effective for advertising than for protection. If the physician really deems Chap's hypophosphites superior to the official article, it *should* suffice to prescribe "Hypophosphites (Chap's)." If it does not suffice, then his medical society has a disagreeable but very necessary duty to perform.

(*To be continued.*)

Nostrums and the German Medical Press.

The *Münchener medizinische Wochenschrift* recently stated that it and certain other medical journals had rejected the advertisements of "leucrol," as this remedy was a "secret proprietary," and they preferred to exclude it from their advertising columns. The manufacturers objected to this statement and pointed with pride to their published formula. To this the *Wochenschrift* replies, June 23: "It is true that the firm publishes a formula for leucrol, but nevertheless the remedy belongs in the class of so-called secret remedies. The principal effective ingredient is said in the formula to be: 'Extract. Jubahar, the extract of an East Indian plant of the family of *Ranunculaceæ* much used medicinally by the natives.' Zernik's analysis of leucrol demonstrated the presence of cocoa, sugar and lemon juice, and the absence of any specially powerful ingredient. None of the authorities consulted had ever heard of the plant, and no reference could be found to it in the text-books or special botanic literature."

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION.]

EXAMINATION OF TABLETS OF BISMUTH, OPIUM AND PHENOL.

The Limitations of Tablet Compounding.

W. A. PUCKNER AND A. H. CLARK.

The demand for "palatable and convenient" medicaments has led manufacturing pharmacists to attempt to produce in tablet form mixtures which, from the nature of the case, are not suited to that method of compounding. In such cases it becomes a question as to what reliance the physician may place in such products and so an examination of a type of these preparations was made in the Association's laboratory.

Nearly every manufacturing pharmacist lists in his catalogue a tablet composed of bismuth, opium and phenol (carbolic acid). According to the price lists and labels, each tablet contains either five or three grains of bismuth subnitrate, one grain of aromatic powder, one-half grain of powdered opium and one-half grain (in one case one-eighth grain) of phenol.

Specimens of different makes of this tablet were purchased, in open market and from the manufacturer, and were examined to determine the amount of phenol each contained. A long series of experiments, the details of which will be published elsewhere, were carried out to determine the best method of estimating the amount of phenol in mixtures of this nature. The methods adopted are given below.[1]

1. Estimation of Phenol (Method A): A quantity of the powdered tablets containing not more than 0.175 gm. phenol was placed in a distilling flask and water sufficient to cover the powder added. The mixture was then acidulated with about 1 c.c. U. S. P. phosphoric acid and the distilling flask connected with a Liebig condenser and a current of steam driven through the flask. The distillation was continued until 250 c.c. of distillate was obtained. Of this distillate, 50 c.c. was measured into a 250 c.c. glass-stoppered flask and 25 c.c. standard bromin solution added, and the mixture acidulated with 5 c.c. hydrochloric acid. After standing one-half hour, the uncombined bromin was determined by adding potassium iodid T. S. and titrating the liberated iodin with standard thiosulphate V. S. As a typical example 8 tablets weighing 3.1045 gm. and calculated to contain 0.2592 gm. phenol were taken. Fifty c.c. of the distillate, representing 0.6209 gm. of the tablets and which should have contained 0.05184 gm. phenol, consumed 11.24 c.c. tenth-normal bromin V. S. Each c.c., being equivalent to 0.001556 gm. phenol, the 50 c.c. contained only 0.017489 gm. phenol, or 2.85 per cent. of the weight of the tablet. (Method B): The same procedure was followed as above outlined, except that the mixture of the powdered tablets and water was saturated with carbon dioxid and the distillation conducted with a brisk current of carbon dioxid passing through the distilling flask constantly.

The results here tabulated were obtained from the examination of specimens purchased direct from the manufacturer. At least one other specimen—bought in the open market—of each manufacturer was examined, the latter giving, in nearly every instance a lower figure, probably because it had been in stock longer. In the few cases in which the latter specimen gave a higher result, both findings are given.

The essential point brought out by the table is, of course, that shown by the figures in Column 8—"Amount Found Expressed as Per Cent. of Amount Claimed." It should be realized that if the tablets contained the amount of phenol claimed, the numbers in this column would all be 100. But instead of this even the best specimen contained only 72.65 per cent., while some ranged as low as 12.66 per cent.

Manufacturer.	1 Weight of Heaviest Tablet in Gms.[2]	2 Weight of Lightest Tablet in Gms.[3]	3 Average Weight of Tablet in Gms.[4]	4 Per Cent. Variation.[5]	5 Per Cent. Phenol According to Formula on Label.[6]	6 Per Cent. Phenol Found. Method A.	7 Per Cent. Phenol Found. Method B.	8 Amount Found expressed as Per Cent. of Amount Claimed.[7]
Hance Bros. and White	.4053	.3400	.3833	17.03	8.45	1.81	1.85	21.89
W. S. Merrell Chemical Co.	.5225	.5152	.5142	1.42	6.30	3.02	3.08	48.89
H. K. Mulford & Co.	.4837	.4569	.4752	5.64	1.72	.86	.90	52.34
Parke, Davis & Co. (No. 1)	.5747	.4993	.5328	14.17	6.08	4.27	...	70.23
Parke, Davis & Co. (No. 2)	.5800	.5245	.5518	10.06	5.87	2.76	2.74	47.02
Sharp & Dohme (No. 1)	.3951	.3742	.3852	5.24	8.41	6.06	6.11	72.65
Sharp and Dohme (No. 2)	.4213	.3544	.3937	17.00	8.23	2.83	2.85	34.63
Frederick Stearns & Co.	.5221	.3690	.4457	34.35	7.27	1.92	1.93	26.55
Truax, Greene & Co.	.3428	.2482	.3232	29.27	10.03	1.38	1.36	13.69
H. K. Wampole & Co. (No. 1)	.3646	.3417	.3525	6.21	9.19	4.06	4.24	46.14
H. K. Wampole & Co. (No. 2)	.3670	.3487	.3609	5.07	8.98	3.53	3.49	39.31
Wm. R. Warner & Co.	.2850	.2397	.2684	17.55	12.08	1.53	1.53	12.66

The comparative weights of the tablets also is interesting. While the difference in weight between the heaviest (Column 1) and the lightest (Column 2) tablet in one-half the specimens, amounted to less than 10 per cent (Column 4) of the average weight (Column 3), in one instance the difference amounted to 34.35 per cent. (Column 4).

These tablets are a typical illustration of the attempts to produce, in "elegant and palatable form," the impossible—impossible at least without care and expense. From the nature of the processes involved in the manufacture of a tablet, it is very difficult to produce one containing a definite amount of a volatile substance like carbolic acid. Accuracy in dosage is indispensable to the scientific administration of drugs. In medicinal preparations of the type just described the essential —accuracy—is sacrificed for the merely desirable—convenience and palatability. To the extent to which physicians prescribe, as tablets, combinations of drugs that can not be successfully put up in that form, to that extent does scientific medicine suffer.

2. Ten tablets, or, if the variation proved to be great, 25 tablets, were separately weighed and the weight of the heaviest tablet recorded.

3. Ten tablets, or, if the variation proved to be great, 25 tablets, were separately weighed and the weight of the lightest tablet recorded.

4. One hundred tablets were weighed, and from this weight the average of a single tablet calculated.

5. These figures were obtained by dividing the difference in weight of the heaviest and lightest tablet by the average weight and multiplying this quotient by one hundred.

6. These figures were obtained by dividing the weight of phenol each tablet should contain by the average weight and multiplying this quotient by one hundred.

7. The figures given here are obtained by dividing the highest per cent. of phenol found by either method by the per cent. of phenol indicated by the formula on the package and multiplying this quotient by one hundred.

Miscellany

Canned Mud from the Exploiters of Nostrums and Impure Foods.

The following from an editorial entitled "Canned Mud," in the *Druggists Circular*, July, is worth reading:

Public opinion is a more or less plastic thing. Those who exert the most force on it usually succeed in shaping it to suit themselves—for the time being. Hence the "canneries." By "canneries" we mean those publicity bureaus which send out in convenient form ready-made editorials and other matter for the papers to print, and bring "influence" to bear on the papers to make them print this kind of literary product. . . .

The federal Food and Drugs Act has been operative for about eighteen months. At first there was not much open opposition to its enforcement, for the law was aimed at fraud and deceit, and, in a way, for a manufacturer to oppose it was to seem to proclaim that he was opposed to a law which had for its principal object the suppression of lying labels on food and drug products. It may be those whose "vested rights" to defraud were to be most affected, believed at first that the law was, as one paper with a Shakespearian leaning had it, mere sound and fury, signifying nothing. But those "interests" recokoned without their host when they flattered themselves that Dr. Harvey W. Wiley—who had seen the necessity for the law as perhaps no other man had, and had striven long and hard for its enactment—would let his labors go for naught. In the eyes of these "interests" Dr. Wiley had been perniciously active. He took the lead in executing a "confiscatory" law which said that morphin-laden soothing syrups, cocain-laden catarrh snuffs, alcohol-laden bitters, acetanilid-laden headache powders, and codein-laden cough syrups which entered interstate commerce should be so labeled as to reveal their dangerous character. He was held responsible in the minds of certain manufacturers for the alternative which was presented to them of admitting damaging truths which they had been persistently denying, or going out of business. He must be suppressed. It was actually getting so that it was risky for a real canner to add poisonous copper salts to his peas to give them a pretty green color and fresh appearance, or to put up bob veal and label it boneless chicken. In one instance an old and highly respected extract manufacturer was rudely brought into a court house and vulgarly fined five dollars for shipping some kind of a chemical combination under an extract of vanilla label. Such outrages could not be borne by self-respecting business men. Something had to be done. . . .

Now, had Dr. Wiley been a different kind of man from what he is, he would have heeded the uproar which his actions were causing and would have pursued a course easier for him and easier for the "interests"—never minding the rights of the people or the mandates of the law. That is to

say, the course he would have pursued would have been easier for him *if* he had been the kind of a man that such a course would have been easier for. . . .

Seeing that he was not amenable to the kind of reasoning that guided their own line of conduct, those manufacturers whose "vested rights" to attach false and misleading labels to their goods had been invaded, were driven to adopt other means to gain their ends. Many of them were canners by trade, so for them to resort to the uses of "canned" methods of attack was but natural. We who read see the result. Let us quote from an article in the *Food Law Bulletin* by Read Gordon. Mr. Gordon says that he is a manufacturer of canned goods, but has refused to join any association to fight the enforcement of the Food and Drugs Act. While he takes issue with Dr. Wiley on the question of the harmfulness or harmlessness of certain food preservatives, he deprecates the creation of a "yellow dog" fund to be used in an underhand fight against the doctor. In the article referred to Mr. Gordon says: "No mere moral consideration will avail to prevent these 'interests' from criticizing Dr. Wiley in the most unfair, unmanly and savage spirit. Evidence of this is beginning to be seen in trade journals and the public press, and this sort of thing, if kept up long enough, will blast any man's reputation, unless he be so firmly fixed in public estimation that such attacks are like water on a duck's back. Unhappily there are but few of this kind." Mr. Gordon goes on to show how the "interests" can "raise funds for their purpose, employ the ablest legal talent, create public adverse opinion through a subsidized press, and drive the individual to despair."

This language reminds us of what we said about another institution whose work is opposed by certain "interests." When the American Medical Association created its Council on Pharmacy and Chemistry, whose duty it should be to examine the claims made for proprietary medicines and to put them to the test, the *Circular* said (in its issue for May, 1905, page 137): "With the aims and objects of this Council no honest man or woman can find fault. We need just such work accomplished, and we need it badly." We went on to say how much pressure would be exerted to control the actions of the Council, and to win the approval of its members by means other than deserving it, and added: "If it is concluded that they can not be won, that their presence on the Council is dangerous to a certain interest, then it becomes necessary to get them removed from the Council and have a pliant tool placed there. The powerful corporations that have much at stake will work for votes to make the change, and the character of the man that holds out most firmly against them will be quietly, steadily and surely undermined. If he is a man of original thought he will be pronounced a dangerous crank. Somehow—anyhow—they will seek to have him deposed. . . . Of course there will be none of this until the Council's work begins to tell. It is only in case of success that these things can happen."

The *Circular* goes on to remark that what was predicted has come to pass in a measure, although so far, it says, the innuendo and open vilification have been mainly against the chairman of the Council. In a similar way, the *Circular* remarks, attacks are now made on Dr. Wiley, chief chemist of the United States Department of Agriculture. "The campaign to turn public sentiment against him may be said to be well under way. He is to be besmirched with 'canned' mud. To borrow some of Mr. Gordon's forms of expression, the press bureau of misinformation is at work, sending out false rumors of possibilities, scraps of information that may be more or less true, but which are perverted, all indicating the starting of a movement having for its object the undoing of Dr. Wiley. When a man stands in the way of the 'interests,' the more of character, usefulness, ability and integrity he has, the more dangerous he is to the 'interests.'"

The Functions of the Hypophysis and the Pineal Gland.—In a communication to the Académie des Sciences, Paris, April 22 (*Progrès méd.*, May 4), M. de Cyon summarized the functions of the pituitary body and the pineal gland as follows: The hypophysis, according to his researches, is an autoregulator of the intracranial blood pressure. It also maintains the tonic excitation of the moderator nerves of the heart. The glandular portion produces two active substances which have to do with the proper functioning of the cardiac and vasomotor nervous apparatus, but only the hypophysis intervenes, indirectly through its active secretions, and directly by its action on the sympathetic and pneumogastric systems, in the organic changes in the tissues; it regulates the diuresis and exerts a certain action on the male sexual organs. The pineal gland acts chiefly in a mechanical way as a regulator of the afflux and reflux of the cerebrospinal fluid through the aqueduct of Sylvius; but its action is null on the blood pressure and very moderate on the cardiac nerves. Garnier and Thaon reported at the session of the Société de biologie, April 13 (*Progrès méd.*, May 4), the results of total extirpation of the hypophysis in twelve dogs. Progressive asthenia, torpor, extreme emaciation with paresis of the hinder limbs were produced, with death following on the sixteenth day.

Chloroform in Obstetrics.—Sir W. J. Sinclair, professor of Obstetrics and Gynecology, Victoria University, Manchester, in a paper read at a meeting of the North of England Obstetrical and Gynecological Society (*Lancet*, May 30, 1908, page 1541), says: "Chloroform as administered in obstetric practice, which was the prevailing use of it at first on account of Professor Simpson's influence, brought disappointments. Its shortcomings were soon fairly demonstrated, especially by Simpson's rivals, to be very much what the experience of half a century has taught us all to accept as the truth. The administration of chloroform had certain unfavorable effects on the pains of labor; when long continued it prevented firm contraction, and it produced postpartum hemorrhage, ending in hemostasis by thrombosis instead of by contraction, and consequent puerperal fever in the form of metrophlebitis. Although since then it has been abundantly proved that ether is in many ways a less harmful anesthetic than chloroform in obstetric practice, British conceit had no expression except the language of contempt for the opinion of American obstetricians who had almost universally adopted ether as the obstetric anesthetic."

The Beneficent Work of Medical Missions.—If, at Christmas time, we ask the man who has seen all that is worth seeing in the world what is the most beneficent work that he has witnessed in any quarter of the earth, he will probably name the work of the men and women who carry the gospel of Jenner and Pasteur and anesthesia. If he shall have faced the onsweep of a pestilence or watched beside a child whose throat was fast closing with a diphtheritic membrane, the work of the educator, the engineer, the philanthropist, even of the minister himself, will have shrunk into the commonplace beside the work of the physician. We are entitled to our individual estimates of the usefulness of the man who goes abroad with the Bible and hymn-book, but there can be little difference of opinion regarding the man or woman who carries his gospel in a surgical case, whose chapel is a thatched dispensary in an out-of-the-way place in the world. The doctor who goes a hundred or a thousand miles beyond the most distant hospital and practices his profession among an alien race—at a salary equal to that of a bookkeeper—certainly need envy no other man in any part of the world his opportunities for doing good.—Edgar Allen Forbes in *World's Work*, December, 1907.

Reduction of Fever by Prolonged Application of Ice to the Heart.—Deléarde and Dubois claim that prolonged application of ice to the heart, or precordial frigotherapy, as they call it, is effectual in reducing the temperature in fever. They have reported a number of case histories and much experimental research. The *Gazette Médicale Belge*, June 18, summarizes their communications which are all in favor of this local application of ice. The measure has been found especially effectual in typhoid, and they think it has no contraindications except in tuberculosis. They keep up the applications day and night, commencing them systematically at the beginning of fever, until the temperature is normal. Air forming as the ice melts must be allowed to escape or otherwise it may form an isolating layer. No antipyretics should be given with this frigotherapy, as the combined effect would be too powerful. The temperature does not fall immediately, generally not for ten or fifteen hours. If the pulse rate keeps high, this shows that the infectious condition persists, even after the temperature has returned to normal.

Contraindications for Massage of Abdomen.—In a communication to the *Zeitschrift für physik. u. diät. Therapie*, April,

1908, Boas urges more careful study of the possible contraindications in each case to avoid disaster from inconsiderate massage of the abdomen. In several cases in his experience a latent intestinal cancer was whipped up to a rapid growth and metastasis by massage of the region, and dormant gastric ulcers aroused. Occult blood should always forbid it. McBurney's point and the gall-bladder region should be carefully examined before massage of the abdomen is attempted, as appendicitis and cholelithiasis strictly contraindicate it. A history of cardialgia at any time, especially before or after pregnancy, increases the probability of latent gallstone trouble. Gynecologic affections must also be excluded, as also any affections of the liver, spleen and pancreas. Massage proves exceptionally beneficial, however, he says, after operations on the stomach, and he urges its more general use to improve motor conditions in the stomach after gastroenterostomy, etc. It should never be ordered, he reiterates, until the physician is certain of his diagnosis. Pain of any kind contraindicates it.

Improved Test for Quantitative Estimation of Albumin in Urine.—I. Tsuchiya writes from A. Schmidt's clinic at Halle to recommend the use of phospho-tungstic acid in place of the Esbach reagent. He has devised an albuminimeter for the purpose, which he describes and illustrates in the *Zentralblatt für innere Medizin*, June 13, 1908, p. 605. He advocates this technic as a great improvement over the Esbach method in simplicity and delicacy of the test. His article is entitled: *Die volumetrische Eiweissbestimmung mittels der Phosphorwolframsäure.*

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

NERVE RESECTION FOR PAINFUL STUMP.

———, JULY 7, 1908.

To the Editor:—I have a case of sensitive and painful stump of the left leg below the knee. The sensation of pain seems to be in the area supplied by the external popliteal nerve. Would there be any injurious results following division of the peroneal nerve in the middle part? P. R. A.

ANSWER.—If the pain in the stump is limited entirely to the distribution of the external popliteal nerve no injurious results whatever can result from a division or, better still, a resection of this nerve. It is to be understood, of course, that the stump itself is in good condition—that is, is not a conical one, in which there is excessive growth of the bone or bad fixation of the flaps to the end of the bone, etc., in which case a reamputation might be better than a simple resection of the nerve.

TREATMENT OF BURNS BY RUBBER TISSUE.

DUBUQUE, IOWA, July 11, 1908.

To the Editor:—Where can I find articles describing the treatment of burns by enclosing them with rubber-tissue dressing? X. Y. Z.

ANSWER.—Consult the following articles:

Van Zandt, T. K.: Study of Burns, *Am. Pract. and News*, June, 1905; abst. under Therapeutics, THE JOURNAL A. M. A., Sept. 23, 1905, p. 939.

Johnson, J. W.: Treatment of Extensive Burn with Rubber-Tissue Dressing, *Northwest Med.*, June, 1907; abst. in THE JOURNAL A. M. A., July 27, 1907, p. 354.

POSSIBLE TUBERCULIN REACTION FROM TUBERCULOUS CHICKEN.

GRINNELL, IOWA, July 18, 1908.

To the Editor:—Light on the following case will be greatly appreciated: A child, 4 years of age, was well till three months ago when tubercular peritonitis developed. Family history is negative. The child did well under treatment until, having eaten tuberculous chicken, marked rise in temperature resulted in 12 hours. The question is whether or not the tuberculous chicken caused the fever by reason of the tuberculin reaction. O. F. PARISH.

PERFORATION IN TYPHOID FEVER.

Dr. Francis D. Patterson, 2103 Locust St., Philadelphia, desires the details of any hitherto unreported cases of perforation in typhoid fever.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 18, 1908:

Carter, E. C., lieut. col., M. C., relieved from duty at Ft. Leavenworth, Kansas., and ordered to duty at the expiration of his present leave of absence, at Ft. Sheridan, Ill.

Munson, E. L., major, M. C., when relieved at Ft. Sheridan, Ill., ordered to duty as instructor in the care of troops at the Army Staff College, Ft. Leavenworth, Kans.

Harris, H. S. T., major, M. C., ordered to duty at the expiration of his present leave of absence at Ft. Leavenworth, Kans.

Page, Henry, Clayton, J. B., Shimer, I. A., Manly, C. J., Ashford, B. K., Chamberlain, W. P., Hartsock, F. M., Webber, H. A., Schreiner, E. R, Duval, D. F., and Baker, David, captains, M. C., promoted to be majors in the Medical Corps, with rank from April 23, 1908.

Huntington, P. W., capt., M. C., left Ft. Rosecrans, Cal., on leave of absence for three months.

LaGarde, L. A., lieut.-col., M. C., returned to Chief Surgeon's office, Denver, Colo., from leave of absence.

Bosley, J. R., capt., M. C., ordered to duty with First Infantry, en route to and at camp at American Lake, Wash.

Raymond, T. U., major, M. C., left Ft. Logan, Colo., with 21st Infantry, for camp near Ft. D. A. Russell, Wyo.

Baily, H. H., capt., M. C., ordered to Ft. Wayne, Mich., for temporary duty, and return.

Woodbury, F. T., capt., M. C., arrived at San Francisco, from Philippine service, and granted leave of absence for two months.

Lowe, T. S., contract surgeon, arrived on the *Sheridan* from Philippine service, and ordered from San Francisco to Vancouver Barracks, Wash., for duty in Dept. of the Columbia.

Dougherty, J. C., Newlove, Geo., Eber, A. H., and White, J. S., arrived at San Francisco on the transport *Sheridan* for leave of absence from the Philippines Division.

Porter, E. H., contract surgeon, ordered from Ft. Worden, Wash., to Ft. Casey, Wash., for temporary duty.

Card, D. P., contract surgeon, granted leave of absence for one month.

Yemans, H. W., contract surgeon, ordered, at the expiration of his present leave of absence, to Ft. Wayne, Mich., for duty.

Weston, H. R., contract surgeon, relieved from duty at Ft. Ethan Allen, Vt., and ordered to Manila, P. I., for Philippine service.

Graves, L. K., contract surgeon, relieved from further duty in the Philippines Division, and ordered to Whipple Barracks, Ariz., for duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending July 18, 1908:

Lee, A. E., asst.-surgeon, detached from the Naval Hospital, Canacao, P. I., and ordered to the *Concord*.

Eytinge, E. O. J., asst.-surgeon, detached from the *Concord* and ordered to the *Ranger*.

Alexander, C. E., pharmacist, appointed pharmacist from July 10, 1908; ordered to the *Relief*.

Harmon, G. E. H., medical director, detached from the Naval Academy and ordered to temporary duty in command of the Naval Medical School Hospital, Washington, D. C.

Kerr, W. M., acting asst.-surgeon, detached from the Naval Hospital, New York, and ordered to the Naval Hospital, Norfolk, Va.

Snyder, J. J., surgeon, detached from the *New Hampshire* and ordered to the *Franklin*.

Randall, R. C., asst.-surgeon, detached from the second torpedo flotilla and ordered to the *Solace*.

Biello, J. A., asst.-surgeon, detached from the *Solace* and ordered to the Pacific torpedo fleet.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and other officers of the Public-Health and Marine-Hospital Service for the fourteen days ended July 15, 1908:

Guiteras, C. M., surgeon, detailed to represent the service at the 5th Pan-American Medical Congress at Guatemala, Aug. 6-10, 1908.

Wertenbaker, C. P., surgeon, leave of absence granted for three days from July 1, 1908, ammended to read 1 day.

Goldberger, Joseph, P. A. surgeon, granted leave of absence for one month, from July 20, 1908.

Ward, W. K., P. A. surgeon, granted leave of absence for one day, June 16, 1908, under Paragraph 191, Service Regulations.

Ward, W. K., P. A. surgeon, relieved from duty at Ellis Island and directed to proceed to Manila, P. I., reporting to the chief quarantine officer for duty.

Creel, R. H., P. A. surgeon, granted leave of absence for two months from Aug. 3, 1908.

Krulish, E., asst.-surgeon, granted leave of absence for 20 days from July 6, 1908.

Hart, L., asst.-surgeon, temporarily relieved from duty at Stapleton, N. Y., and directed to proceed to Washington, D. C., reporting to the director of the Hygienic Laboratory for temporary duty.

Wilson, J. G., acting asst.-surgeon, granted leave of absence for three days from June 16, 1908, under Paragraph 210, Service Regulations.

Glennan, A. H., asst.-surgeon-general, granted leave of absence for twenty-eight days from July 22, 1908.

Wickes, H. W., P. A. surgeon, directed to proceed to Brunswick Quarantine Station, Georgia, for special temporary duty, on completion of which to rejoin station.

Parker, H. B., P. A. surgeon, granted leave of absence for one month from Aug. 1, 1908.

Ward, W. K., P. A. surgeon, granted leave of absence for seven days from July 14, 1908, under Paragraph 191, Service Regulations.

Trask, J. W., P. A. surgeon, granted leave of absence for 27 days from Aug. 3, 1908.

Manning, H. M., asst.-surgeon, directed to report to the director, Hygienic Laboratory, for temporary duty.

Manning, H. M., asst.-surgeon, granted leave of absence for three days from July 12, 1908.

Salmon, T. W., asst.-surgeon, directed to report to chairman of Board of Examiners in Washington, D. C., July 20, 1908, to determine his fitness for promotion to grade of P. A. surgeon.

Ashford, F. A., asst.-surgeon, directed to report to P. A. Surgeon Foster, San Juan, Porto Rico, for examination for promotion to grade of P. A. surgeon.

Pettyjohn, Jos., asst.-surgeon, directed to report to the chairman of Board of Examiners, Manila, P. I., to determine his fitness for promotion to grade of P. A. surgeon.

McKeon, F. H., asst.-surgeon, directed to report to chairman of Board of Examiners, Manila, P. I., to determine his fitness for promotion to grade of P. A. surgeon.

Sweet, E. A., asst.-surgeon, directed to report to the chairman of a Board of Examiners at San Francisco, Cal., July 20, 1908, to determine his fitness for promotion to the grade of P. A. surgeon.

Spratt, R. D., asst.-surgeon, directed to report to the Chairman of Board of Examiners at Washington, D. C., July 20, 1908, to determine his fitness for promotion to the grade of P. A. surgeon.

Altree, G. H., acting asst.-surgeon, excused from duty without pay for two months from June 4, 1908.

Carter, P. I., acting asst.-surgeon, granted leave of absence for four days from July 6, 1908, under Paragraph 210, Service Regulations.

Nute, A. J., acting asst.-surgeon, granted leave of absence for sixteen days from Aug. 4, 1908.

Rodman, J. C., acting asst.-surgeon, granted leave of absence for seven days from July 14, 1908.

Seavey, L. T., acting asst.-surgeon, granted leave of absence for twenty-one days from July 25, 1908.

Spohn, A. E., acting asst.-surgeon, granted leave of absence for thirty days from Aug. 1, 1908, and excused without pay Aug, 31 to Oct. 31, 1908.

Tappan, J. W., acting asst.-surgeon, granted leave of absence for twenty days from July 8, 1908.

Walker, T. D., acting asst.-surgeon, granted leave of absence for eight days from June 25, 1908.

APPOINTMENT.

Dr. Henry C. Richter, of Pennsylvania, was on July 7, 1908, appointed an acting asst.-surgeon for duty at Calexico, Cal.

BOARDS CONVENED.

A board of medical officers was convened to meet at Seattle, Wash., for the purpose of examining certain alien immigrants. Detail for the board: P. A. Surgeon M. W. Glover, chairman; Asst.-surgeon C. W. Chapin, recorder.

The board of medical officers convened to meet in San Francisco, on July 6, 1908, to examine asst.-surgeons for promotion to the grade of P. A. surgeon, was re-convened to meet July 20, 1908. Detail for the Board: Surgeon H. W. Austin, chairman; P. A. Surgeon Rupert Blue; P. A. Surgeon W. W. King, recorder.

A board of medical officers was convened to meet in Manila, P. I., to examine assistant surgeons for promotion to the grade of P. A. surgeon. Detail for the Board: P. A. Surgeon V. G. Heiser, chairman; P. A. surgeon T. B. McClintic; P. A. Surgeon A. J. McLaughlin, recorder.

A board of medical officers was convened to meet in Washington, D. C., July 20, 1908, to examine asst.-surgeons for promotion to the grade of P. A. surgeon. Detail for the board: Asst. Surgeon-Gen. W. J. Pettus, chairman; P. A. Surgeon A. M. Stimson; P. A. Surgeon J. W. Trask, recorder.

Boards of medical officers were convened to meet on July 13, 1908, for the purpose of examining officers of the Revenue Cutter Service for promotion, as follows:

Baltimore: Surgeon L. L. Williams, chairman; P. A. Surgeon J. T. Burkhalter, recorder.

New York: P. A. Surgeon J. A. Nydegger, chairman; P. A. Surgeon C. H. Lavinder, recorder.

Boston: Surgeon R. M. Woodward, chairman; Acting Asst.-Surgeon F. H. Cleaves, recorder.

San Juan, P. R.: P. A. Surgeon M. H. Foster, chairman; Acting Asst.-Surgeon P. del Valle Atilles, recorder.

Chicago: Surgeon G. B. Young, chairman; Asst.-Surgeon C. E. Wood, recorder.

Mobile: Surgeon G. M. Guiteras, chairman; Acting Asst.-Surgeon C. S. Carter, recorder.

Detroit: Surgeon Fairfax Irwin, chairman; Acting Asst.-Surgeon E. W. Mooney, Recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 10, 1908:

SMALLPOX—UNITED STATES.

California: Los Angeles, June 20-27, 2 cases; San Francisco, 6 cases.

Washington: District of Columbia, June 20-27, 1 case.

Illinois: Chicago, June 20-27, 2 cases; Jacksonville, June 1-30, 10 cases; Springfield, June 18-July 2, 3 cases.

Indiana: Fort Wayne, June 14-29, 3 cases; Indianapolis, June 21-28, 3 cases, 1 death; La Fayette, June 30-July 6, 1 case; South Bend, June 30-July 4, 1 case; Terre Haute, June 20-27, 1 case.

Iowa: Cedar Rapids, June 1-30, 4 cases.

Louisiana: New Orleans, June 29-July 4, 5 cases.

Michigan: Saginaw, June 20-27, 1 case.

Minnesota: Winona, June 20-27, 1 case.

Missouri: Kansas City, June 27-July 4, 1 case; St. Joseph, June 20-27, 2 cases.

North Carolina: Charlotte, June 20-27, 1 case.

Ohio: Cincinnati, June 26-July 3, 1 case; Dayton, June 27-July 4, 3 cases; Toledo, June 13-20, 4 cases; Topeka, 3 cases.

Tennessee: Knoxville, June 20-27, 1 case.

Texas: San Antonio, June 27-July, 2 cases.

Washington: Spokane, June 20-27, 6 cases.

Wisconsin: La Crosse, June 13-July 4, 7 cases; Milwaukee, 8 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, May 9-23, 29 cases, 21 deaths.

SMALLPOX—FOREIGN.

Brazil: Bahia, May 1-31, 114 cases, 5 deaths; Rio de Janeiro, May 24-June 14, 717 cases, 266 deaths.

China: Hongkong, May 16-23, 8 cases, 5 deaths; Shanghai, May 24-June 14, 3 cases (foreign).

Ecuador: Guayaquil, June 6-13, 1 death.

Egypt: Cairo, June 3-17, 16 cases, 2 deaths.

France: Paris: June 13-20, 2 cases; Toulon, May 1-31, 1 case.

Germany: General, June 6-20, 10 cases; Bremen, May 23-June 6, 3 cases.

India: Bombay, May 25-June 9, 45 deaths; Calcutta, May 16-23, 12 deaths; Madras, May 23-29, 1 death.

Italy, general; June 14-21, 20 cases; Naples, June 6-20, 12 cases.

Japan: Kobe, May 31-June 6, 4 cases; Osaka, May 16-30, 46 cases, 28 deaths.

Mexico: Aguas Calientes, June 14-27, 4 deaths.

Portugal: Lisbon, June 20-27, 4 cases, 2 deaths (imported).

Russia: Batoum, May 1-31, 1 case; Moscow, June 6-13, 17 cases, 11 deaths; Riga, June 20-27, 1 case; St. Petersburg, June 6-13, 54 cases, 11 deaths; Warsaw, May 9-16, 4 deaths.

Siberia: Vladivostok, May 21-June 4, 4 cases.

Spain: Valencia, June 6-20, 25 cases, 1 death.

Straits Settlements: Singapore, May 16-23, 1 death.

Turkey: Constantinople, June 7-21, 7 deaths.

YELLOW FEVER.

Brazil: Manaos, May 31-June 13, 3 cases, 3 deaths; Para, June 6-20, 5 cases, 5 deaths; Rio de Janeiro, May 31-June 7, 2 cases, 2 deaths.

Cuba: Daiquiri, July 11-13, 4 cases.

Ecuador: Guayaquil, June 6-13, 2 deaths.

Mexico: Frontera, July 12, 1 case; Veracruz, 2 cases, 1 death.

Philippine Islands: Provinces, Capiz, May 9-23, 100 cases; Pangasinan, 100 cases.

CHOLERA.

India: Bombay, May 25-June 2, 1 death; Calcutta, May 16-23, 71 deaths; Madras, May 23-29, 5 deaths; Rangoon, May 16-30, 21 deaths.

PLAGUE.

Brazil: Rio de Janeiro, May 24-June 14, 1 case.

China: Hongkong, May 16-23, 114 cases, 95 deaths.

Ecuador: Guayaquil, June 6-13, 5 deaths.

Egypt: General, June 11-25, 102 cases, 45 deaths; Alexandria, 7 cases, 3 deaths.

Formosa: May 23-June 6, 212 cases, 180 deaths.

India: General, May 16-30, 5,300 cases, 4, 360 deaths; Bombay, May 25-June 9, 218 deaths; Calcutta, May 16-23, 79 deaths; Madras, May 23-29, 1 death; Rangoon, May 16-30, 82 deaths.

Japan: Kobe, May 23-30, 1 case, 1 death.

Peru: Callao, June 6-13, 1 case.

Trinidad: June 22, 1 death.

Venezuela: Caracas, June 20-21, 4 cases, 2 deaths; June 21-27, 6 cases, 1 death; La Guaira, June 16-19, 5 cases, 1 death.

Straits Settlements: Singapore, May 16-23, 1 death.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Meritorious Bills Introduced by Congressman Mann.

Hon. James R. Mann, of Illinois, has introduced into the House of Representatives two bills of interest to physicians and druggists and of the greatest importance to the public, which we quote in full:

A BILL relating to the transportation of habit-forming and poisonous drugs in interstate and foreign commerce, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That hereafter it shall be unlawful for any person, firm, company, corporation, or association to deposit in the mails, or to send by mail any alpha or beta eucain, chloral hydrate, cocain, hyoscin, morphin, opium, scopolamin, or any derivative or preparation of any of the foregoing substances, except on the original prescription or written order of a legally authorized practitioner of medicine, dentistry, or veterinary medicine.

Provided, however, that the foregoing provisions shall not apply to articles sent in the ordinary course of business from manufacturers, jobbers, or wholesale dealers to registered retail druggists, legally authorized practitioners of medicine, dentistry, or veterinary medicine, to manufacturers of medicinal remedies or pharmaceutical preparations, to hospitals, colleges, scientific and public institutions, or to each other.

SEC. 2. That any person, firm, company, corporation, or association violating any of the provisions of this paragraph shall be deemed guilty of a misdemeanor and on conviction may be fined not exceeding $100 for each offense, and on conviction for each offense subsequently committed may be fined not exceeding $500 or be imprisoned not exceeding one year, or both such fine and imprisonment in the discretion of the court.

A BILL relating to the transportation of habit-forming and poisonous drugs in interstate and foreign commerce, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That it shall be unlawful for any person, firm, or corporation to send, carry, ship, or bring into any state, territory, or the District of Columbia, by frieght, express, mail, or otherwise, from any other state, territory, or the District of Columbia, or from any foreign country, directly to a consumer, or to sell, or furnish, or give away, or have in his or her possession, except as provided for in this section, in the territories or the District of Columbia, any alpha or beta eucain, chloral hydrate, cocain, hyoscin, morphin, opium, scopolamin, or any derivative or preparation of any of the foregoing substances, except on the original prescription or written order of a legally authorized practitioner of medicine, dentistry, or veterinary medicine, which prescription or order shall be dated and shall contain the name of the person for whom prescribed, or if ordered by a practitioner of veterinary medicine shall state the kind of animal for which ordered and shall be signed by the person giving the prescription or order. Such written prescription or order shall be kept on file for a period of not less than three years by the person, firm or corporation who shall compound the article or articles prescribed or ordered, and it shall not again be compounded or dispensed except on the written order of the original prescriber for each and every subsequent compounding and dispensing. In no case, however, shall the original prescription or written order, for a human being, call for more than one-fourth of one ounce of chloral hydrate or more than one-eighth of one ounce of alpha or beta eucain, cocain, hyoscin, morphin, opium, scopolamin, or corresponding amounts of any derivative of the above-named substances, whether simple, mixed, or compounded into any preparation; and when two or more of any of the above ingredients are prescribed together the combined total quantity of such substances prescribed must not exceed one-eighth of one ounce. The above original prescriptions and written orders shall be subject to inspection at all times by any federal or state official delegated by the Secretary of Agriculture.

Provided, however, that the above provisions shall not apply to sales at wholesale by jobbers, wholesalers, and manufacturers to registered retail druggists or to each other, or to sales made to manufacturers of medicinal remedies or pharmaceutical preparations for use in tne manufacture of such preparations, nor to sales to hospitals, colleges, scientific and public institutions.

SEC. 2. That no person, firm or corporation shall send, carry, ship, import, or bring into any state, territory, or the District of Columbia, by freight, express, mail, or otherwise, from any other state, territory, or the District of Columbia, or receive for shipment into any state, territory, or the District of Columbia or sell or furnish or give away in the territories or the District of Columbia any of the following-described substances, to wit: The caustic hydroxids of ammonium, potassium and sodium; the concentrated mineral acids; the essential oils of bitter almonds, pennyroyal, rue, and savin; wood alcohol and yellow phosphorus or any preparation or compound containing the same; the salts and derivatives of antimony, arsenic, barium, chromium, copper, gold, lead, mercury (excepting calomel), silver, and zinc, or any preparation or compound containing the same; the following-named substances and their derivatives or any compound or preparation containing the same, namely, acetanilid, acetphenetidin, aconite, antipyrin, belladonna, cannabis indica, cantharides, carbolic acid, chloral hydrate, chloroform, coculus indicus, codein, colchicum, conium, cotton root, creosote, croton oil, damiana, diacetyl morphin, digitalis, ergot, formaldehyd, hydrocyanic acid, hyoscin, hyoscyamus, ignatia, laudanum, lobelia, morphin, nux vomica, opium, oxalic acid, paregoric, Paris green, phenacetin, physostigma, phytolacca, pyramadon, scopola, stramonium, strophanthus, strychnin, sulphonal, tansy, trional, veronal, veratrum viride, or any other virulent poison, unless the bottle, box, carton, or any other package, including any wrapper or covering, containing any of the above-named substances, compounds, preparations, or derivatives is labeled and such label is printed on red paper in distinct white letters or in distinct red letters on white paper, with the word "Poison" in letters not less in size than any other letters used on the label, and in no case smaller than required by regulation seventeen (c) of the rules and regulations for the enforcement of the Food and Drugs Act of June 30, 1906, and the skull and crossbones device, together with the names of one or more suitable antidotes and the name and address of the person, firm, or corporation manufacturing, shipping, importing, or selling the same

SEC. 3. That any person, firm, or corporation violating any of the provisions of this act shall be guilty of a misdemeanor, and for such offense shall be fined not exceeding $200 for the first offense and, on conviction, for each subsequent offense not exceeding $300, or be imprisoned not exceeding one year, or both such fine and imprisonment, in the discretion of the court.

The passage of these bills will not in any way interfere with the legitimate business of physician, manufacturer, wholesale druggist or pharmacist since all such business is expressly exempt. It will prevent and is evidently designed to prevent irresponsible persons—and it will check some of the advertising quacks especially—from carrying on a mail order business and sending out medicinal preparations containing habit-forming or dangerous drugs, abortifacients and other preparations used by quacks and swindlers. If these bills become laws the sale to the public of dangerous drugs will be limited to the pharmacists and the distribution of such preparations by irresponsible parties will be prohibited. Since these bills were introduced, editorials and comments have appeared in several of the drug journals calling on druggists to oppose their passage. Certainly the writers of such notices were either ignorant of the provisions of the bills or else were more interested in the business prospects of the proprietary manufacturer engaged in the mail order business than they were in the retail druggists. The bills proposed can not possibly affect the wholesale or retail pharmacist nor can they touch his business in any way. They are simply designed to stop mail order business in dangerous drugs and should have the support and endorsement of all physicians and druggists, as well as all others interested in the protection of public health.

County Milk Commissions.

An editorial in the July *Ohio State Medical Journal* on "The Medical Milk Commission" points out that the work of securing pure milk for the public is essentially a county society function and that it is the duty of every county society to see that steps are taken to control and supervise the milk supply. Dr. Henry L. Coit of Newark, N. J., in 1892, inaugurated through the Essex County Medical Society a local medical milk commission and adopted the term "certified milk" to designate milk which had been inspected by the milk commission and approved.

This work opens up a field of usefulness for county societies which will quickly and positively demonstrate to the public the value of proper medical organization. Few communities can be so dense or so ignorant as not to realize the value of a pure milk supply for the babies and young children. A commission of representative medical men of the county can formulate rules to be observed by dairymen and milk dealers and can by proper inspection secure the enforcement of these rules. Dealers complying with the requirements can be given a certificate and the physicians of the county, by advising their patients and families to purchase only certified milk, the purity of which is assured, can practically regulate the milk business of the county.

Such work is so manifestly unselfish and philanthropic on the part of physicians that it can not fail to secure public support.

The Duty of Physicians in Prohibition States.

At the recent session of the Medical Society of the State of North Carolina, Dr. J. Howell Way, the retiring president, presented a series of resolutions regarding the enforcement of the state law regulating the sale of liquors except on physicians' prescriptions and stating that, in view of the confidence shown by the public in the medical profession in placing in the hands of physicians the right to prescribe liquor at their discretion, the Medical Society of the State of North Carolina condemns as unprofessional and grossly immoral any lax or unfaithful conduct on the part of its members in this particular; that all physicians be urged to aid in the enforcement of the law and in building up a public sentiment that will insure protection against illegal traffic in intoxicating liquors and that the Board of Medical Examiners of the state be urged to revoke the license of any physician proved guilty

of prescribing intoxicants unnecessarily. The resolutions were unanimously adopted and were ordered printed in the newspapers of the state.

Two Years of Postgraduate Work.

Dr. Wilfred Haughey, the retiring president of the Battle Creek (Mich.) Medical Club, reports a most successful year's work. This club is an adjunct of the Calhoun County Medical Society and organized for the purpose of taking up the postgraduate course of study. During the past year, which has been the second year of postgraduate work for the club, forty-two meetings have been held with an average attendance of over fifteen, or twice the attendance of last year. In only a single instance has a member on the program been absent. The members of the club are greatly pleased with the plan of postgraduate work.

As pointed out in this department in a previous issue, the organization of local clubs for postgraduate scientific work can be made a valuable adjunct of county societies, so long as the club is an adjunct and not a rival of the county society. Valuable as its work is, it should not be allowed to take the place of the larger organization. While more frequent meetings of the local clubs are possible, they should be utilized as feeders for the regular meetings of the county society, the best papers on the programs being repeated before the larger audiences of the county society. Caution is necessary in this particular lest we unconsciously drift again into the condition of innumerable medical societies, indefinite in affiliation and responsibilities and overlapping in jurisdiction, from which the reorganization movement has well-nigh freed us. The same caution is necessary in large cities in which district or branch societies have been organized, lest, owing to the greater interest of the general practitioner in his district or local society, interest and enthusiasm for the main or county society be allowed to wane. The essence of our present plan of organization which has accomplished so much and which is capable of far greater things is the trinity of medical organizations—the county society, the state association and the national association.

Reorganization in Maine.

Dr. W. B. Moulton, the newly elected secretary of the Maine Medical Association, reports that at the annual meeting of that body held in June, a new constitution and by-laws were adopted, providing for the organization of component county societies and for the establishment of a delegated legislative body for the state association.

The adoption of these two features, the essentials of the reorganization plan, places Maine in the column of reorganized states and inaugurates a new order of things in medical organization in that state. From observation of results in other states it can be asserted positively that the next five years will witness greater achievements along every line on the part of the medical profession of Maine than have been secured in any twenty years heretofore. The establishment of county societies will afford an opportunity to every physician in the state to keep in touch with medical organization and progress and will weld the profession of the state into a single harmonious and useful body. A number of inquiries have already been received regarding the method of organizing county societies, the different lines of work to be taken up, etc. We congratulate the physicians of Maine on this achievement for we know that it will be the beginning of a new day for the people and the physicians of that state.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Eleventh Month.

SECOND WEEKLY MEETING.

Uremia.

Etiology.

Occurrence in nephritis, in obstruction of ureter, compression of renal vessels, cholera, etc.

Theories of Causation: (a) Retention or accumulation of excretory products, gradual or rapid, character of poisons. Bouchard's views. (b) Traube's views, localized or general edema of brain.

Symptoms:

Distinguish between acute and chronic uremia. Cerebral symptoms, slight to extreme; headache, somnolence, stupor and coma, or acute delirium. Convulsions, character, onset, severity, course, duration. Amaurosis and deafness. Respiratory symptoms, dyspnea. Gastrointestinal symptoms. Pulse, rate and tension; temperature, urine.

Hematuria and Hemoglobinuria.

Hematuria.

Etiology: Renal causes: inflammations, infarction, calculi and pyelitis, tuberculosis, malignant disease, parasites. Traumatism.

Affections of urinary tract: (a) Ureter, calculi, traumatism; (b) bladder, calculi, malignant tumors, acute cystitis, varicose veins; (c) urethra, gonorrhea, calculi, parasites, traumatism.

General diseases: Acute specific fevers, blood dyscrasiæ, chronic heart, lung or liver disease.

Diagnosis: 1. Presence of blood; color, sediment, chemical tests (Heller's guaiacum). Microscopic examination. Spectroscope. 2. Source of hemorrhage: mixture with urine, clot, molds, casts. Cystoscope, ureteral catheterization.

Hemoglobinuria.

Toxic: (a) Poisons; carbolic and pyrogallic acids, potassium chlorate, naphthol, phosphorus, carbon dioxid. (b) Poisonous fungi, muscarin. (c) Infectious diseases, scarlet fever, typhoid, malaria, syphilis, yellow fever, purpura. (d) Cold and exertion. (e) Burns, absorption of hemorrhagic effusion, transfused blood. (f) Epidemic hemoglobinuria in infants.

Paroxysmal: Sex, age, cold, exhaustion. Association with Raynaud's disease. Pain, gastric disorders, jaundice. Urine; color, reaction, blood tests. Microscopic examination. Methemoglobin.

Marriages

JOHN HUNT, M.D., Seattle, Wash., to Miss Grace Portrais, recently.

JAMES W. HADLEY, M.D., to Miss Ethel Stoms, both of Frankfort, Ind., July 2.

X. P. DEDONATO, M.D., Georgetown, Wash., to Miss Flora Agnes Corgeat, June 11.

HIRAM B. TEBBETTS, M.D., to Mrs. Harriet Baurman, both of Los Angeles, June 20.

JACOB SILBERMANN, M.D., to Miss Jessie Stern, both of Cleveland, Ohio, June 28.

SCHUYLER A. WHITSITT, M.D., to Miss Margaret Crosby, both of Kent, Ind., June 24.

AMOS G. REESE, M.D., Williamsport, Pa., to Miss Helen Rounds of Sayre, Pa., July 2.

JOHN HUNT SHEPHARD, M.D., to Miss Vera Nevers, both of Cœur d'Alene, Idaho, June 25.

THOMAS RALPH CASTLE, M.D., LeMars, Iowa, to Miss Edna Pabst of Albia, Iowa, June 24.

WILLIAM A. SHEPHERD, M.D., to Miss Minnie M. Mattis, both of Seymour, Wis., July 1.

ERNEST CHARLES STRAUS, M.D., to Miss Elsie Leszinsky, both of Louisville, Ky., July 9.

ANTHONY P. DONOHOE, M.D., to Miss Kathryn McCormack, both of Davenport, Iowa, June 25.

VANCE W. WATERMAN, M.D., Vergennes, Vt., to Miss Mary A. Rikor of Newark, N. J., June 24.

CLARENCE NICHOLAS MCCUMBER, M.D., to Miss Iva Maud Rice, both of Lewiston, Ill., June 30.

LORIN C. KNEE, M.D., to Miss Anna M. Koenig, both of Lawton, Okla., at Oklahoma City, July 2.

GIFFORD LYNE SOBEY, M.D., to Miss Katharine Bayard Douglas, both of San Francisco, April 19.

GEORGE LEWIS WICKES, M.D., U. S. Navy, to Miss Marjorie Lindsay Appel of Cheyenne, Wyo., July 8.

HARRY HILL VAN KIRK, M.D., U. S. Army, to Miss Henrietta Clark Jordan, at New York, June 24.

A. PAUL TRAYWICK, M.D., Cameron, S. C., to Miss Janie May Crute of Buckingham County, Va., June 24.

ROY G. SWINNEY, M.D., Troy, Iowa, to Miss Minnie Shaw of Bloomfield, Iowa, at Ottumwa, Iowa, July 1.

GEORGE H. KENNETT, M.D., Kellogg, Idaho, to Miss Perle Schmalhausen of Missoula, Mont., in Idaho, June 24.

JAMES W. STRIBLING, M.D., Dickinson, N. D., to Miss Frances Archibald of Jamestown, N. D., at Spiritwood Lake, June 24.

PRESTON POPE SATTERWHITE, M.D., New York, to Mrs. James E. Martin, Sr., of Martin Hall, near Great Neck, Long Island, July 7.

Deaths

Walter P. Hanning, M.D. Ohio Medical University, Columbus, 1903; of Nelsonville, Ohio; a member of the Ohio State Medical Association; died at St. Anthony's Hospital, Columbus, July 8, after an operation for gallstones, aged 29.

Lewis Barnes, M.D. University of Buffalo Medical Department, 1851; a member of the Connecticut State Medical Society; for many years health officer of Oxford, Conn.; died at his home in that place, July 5, of apoplexy, aged 84.

Winfield Scott Phillips, M.D. University of Vermont, College of Medicine, 1867; a member of the American Medical Association; for forty years a general practitioner in Arlington, Vt.; died at his home May 14, from myocarditis, aged 66.

Maximilian Frederick Charles Drescher, M.D. Long Island College Hospital, Brooklyn, 1891; a member of the Medical Society of the State of New York; died at his residence in South Brooklyn, July 7, from heart disease, aged 51.

Andrew McP. Cheeseman, M.D. Jefferson Medical College, Philadelphia, 1848; formerly of Philadelphia; died at Bethesda Hospital, Cincinnati, June 30, after an illness of five months of heart disease, aged 83.

Samuel N. Walker, M.D. University of Louisville Medical Department, 1877; a retired physician of Baldwyn, Miss.; died at his home in that town, July 7, after an illness of several weeks, aged 66.

J. J. Washington, M.D. Medical College of Alabama, 1880; a member of the American Medical Association; of Pass Christian, Miss.; died at his home, July 8, of heart disease, aged 56.

Alfred McLaughlin, M.D. Medical Department of the University of California, 1896; of San Francisco, who had been in failing health for some time; died at Pleasanton, aged about 37.

John Franklin Reiley, M.D. Missouri Medical College, 1896; a member of the Missouri State Medical Association; died at his home in West Plains, Mo., of cerebral hemorrhage, aged 36.

Beatrice Magdalene Curran, M.D. Woman's Medical of Pennsylvania, 1904; died at her home at South Hadley Falls, Mass., July 10, from valvular disease of the heart, aged 27.

Augustus R. Edmonds, M.D. St. Louis College of Physicians and Surgeons, 1884; a veteran of the Civil War; died at his home in Miami, Mo., July 7, after a lingering illness, aged 64.

James Hoffman, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1885; of Jersey City, N. J.; died at his summer home in Newfoundland, N. J., July 8, of apoplexy.

George W. Hall, M.D. Jefferson Medical College, Philadelphia, 1855; one of the oldest physicians in St. Louis; died at his home in that city, July 7, after a long illness, aged 78.

Benjamin W. Bizzell, M.D. Southern Medical College, Ga., 1886; formerly a member of the Atlanta Board of Health; died in Phoenix, Arizona, June 26, of tuberculosis, aged 40.

Bert L. Goldthwait, M.D. Albany Medical College, Albany, N. Y., 1892; of Schenectady, N. Y.; formerly a practitioner of Troy, N. Y.; died suddenly at his home, June 17, aged 41.

James G. Ireland, M.D. University of Maryland School of Medicine, 1852; formerly of Baltimore; died at Washington, D. C., July 9, after a long illness, of paralysis, aged 77.

Francis J. Smith, M.D. Detroit College of Medicine, 1901; a member of the Michigan State Medical Society; of Sickles, Mich.; died at Ithaca, July 2, of tuberculosis, aged 31.

Daniel M. Stout, M.D. Jefferson Medical College, Philadelphia, 1847; a member of the Medical Society of New Jersey; died at his home in Berlin, N. J., July 10, aged 82.

Henry V. Dunstan, M.D. Medical College of Virginia, Richmond, 1862; one of the leading physicians of Windsor, N. C.; died at his home in that city, June 30, aged 66.

Edwin S. Robins, M.D. Jefferson Medical College, Philadelphia, 1854; of Shamokin, Pa.; one of the oldest practitioners in that part of the state; died July 9.

Jacob Charles, M.D. Long Island College Hospital, 1869; of Ephrata, Pa.; formerly a practitioner of Lincoln, Pa.; died at his home June 22, from nephritis, aged 60.

Zarilda P. Bradley, M.D. Eclectic Medical University, Kansas City, Kan., 1906; died in a private sanitarium in Kansas City, Mo., July 3, after an operation, aged 45.

John E. Sombart, M.D. Jefferson Medical College, Philadelphia, 1881; of Wilmore, Kan.; died in Wichita, July 8, after an operation for appendicitis, aged 49.

George B. Hamlin, M.D. Chicago Homeopathic Medical College, 1893; died at his home at Frankfort Station, Ill., after a lingering illness, July 2, aged 42.

Henery Flannery, M.D. University of Pennsylvania Department of Medicine, 1901; died in St. Agnes Hospital, Philadelphia, July 2, of uremia, aged 31.

John Buchanan, M.D. Medical Department University of Nashville, 1861; a veteran of the Civil War; died at his home in Eads, Tenn., July 8.

Richard B. Cash, M.D. Ensworth Medical College, St. Joseph, Mo., 1891; died at his home in Spickard, Mo., after a long illness.

John A. Carlstein, M.D. Chicago Homeopathic Medical College, 1882; of Ravenswood, Chicago; died at Charlevoix, Mich., July 10.

Willis S. Green (Years of Practice, Ind.), died at his home in Evansville, July 10, from apoplexy.

Death Abroad.

O. Liebreich, M.D., professor of pharmacology and director of the Pharmacologic Institute at the University of Berlin since 1871, until forced to retire on account of illness over a year ago, died July 2, aged 69. He began life as a sailor, then took degrees in chemistry and in medicine and became assistant to Virchow in 1867. Among the discoveries for which he is noted are the special properties of chloral and ethyl chlorid, strychnin as an antidote to chloral, the synthesis of oxyneurin, action of formalin, etc., and lanolin. He founded the *Therapeutische Monatshefte* in 1887.

Society Proceedings

COMING MEETINGS.

American Public Health Association, Winnipeg, Can., Aug. 25-28.
American Acad. of Ophthal. and Oto-Laryng., Cleveland, Aug. 27-29.
Wyoming State Medical Society, Sheridan, Aug. 28.

CONNECTICUT STATE MEDICAL SOCIETY.

One Hundred and Sixteenth Annual Meeting, held in New Haven, May 27-28, 1908.

The President, DR. EVERETT J. MCKNIGHT, Hartford, in the Chair.

Officers Elected.

The following officers were elected: President, Dr. Seldom B. Overlock, Pomfret; Vice-presidents, Drs. Irving L. Hamant, Norfolk, and Walter L. Barber, Waterbury; Secretary, Dr. Walter R. Steiner, Hartford; Treasurer, Dr. Joseph H. Townsend, New Haven; delegates to the American Medical Association, Drs. D. Chester Brown, Danbury, and Everett J. McKnight, Hartford.

Hartford was chosen as the next meeting place.

Deformities of the Neck.

DR. E. H. ARNOLD, New Haven, reviewed the general etiology of deformities of the neck giving the nomenclature of two typical deformities. He discussed cervical rib as an important etiologic factor of congenital rib deformity and said it might be productive of no apparent outward deformity,

of caput obstipum anteriore, or torticollis: Pressure neuritis in the arm was occasionally produced by it. He reported six cases. The progressive development of this condition might produce subjective symptoms as well as a late deformity.

Case of Congenital Hypertrophic Stenosis of the Pylorus in Infants.

DR. ISAAC W. KINGSBURY, Hartford, referred to the first case of this disease as being described by a Connecticut man, Dr. Hezekiah Beardsley, of Southington. He then reviewed the pathology and symptoms of this condition, laying stress on the necessity of frequent examinations with the patient fully undressed. Under etiology he noted the rarity of the affection among the Latin and Slavonic races. In considering the diagnosis the pathologic conditions should be kept in mind. If spastic, the symptoms would subside, the loss of weight would not be progressive, the vomited stomach content might be abnormal and diarrhea might alternate with constipation. Concerning the treatment he stated it was to be considered a surgical affection and the operation must be undertaken by a competent surgeon. Prognosis was bad without an operation, but fair with one according to the condition of the patient and skill of the surgeon, ultimate prognosis after medical treatment dubious, after operative treatment excellent. He then described the case of a child, operated on by Dr. John C. Munro of Boston, eleven months ago. The patient made an uninterrupted recovery and its present weight is twenty-one pounds.

Recent Progress in Exact Diagnosis of Aural Brain Complications.

DR. E. DORLAND SMITH, Bridgeport, in discussing this subject said that otologists were now trying to forestall brain complications of aural infection by early operation on selected cases. Exact methods were needed to pick out these cases as they were usually without redness, swelling and tenderness of the mastoid process. Most of them were persistent chronic running ears in which there was either pus aspirable after cleaning, dead or rough bone in the tympanic cavity or attic, cholesteatoma, mastoid disease, or labyrinth involvement. The last was especially important as the suppurating labyrinth was not only more common than had been supposed, but was one of the regular and not infrequent paths by which infection goes from the ear to the brain. Several forms of labyrinth affection might be differentiated according to the character of the cochlear deafness, to the disturbance of equilibrium by dizziness and the nystagmus of vestibular affection, and to the presence or absence of vestibular irritability. Some of these ideas about the labyrinth had not yet stood the test of time, but so much was true and useful that labyrinth investigation could not be neglected. Nystagmus was easily observed, and by its presence or absence, its amount, direction, variability, etc., often gave definite help in diagnosis. When brain complications were present, an early exact diagnosis led to a simpler and surer operation. Such a diagnosis required close study of the case and often a minute record of symptoms, but might often be made by searching out every bit of evidence and by thinking out all the possible theoretical causes for each symptom. Whether made or not, the attempt to make an exact diagnosis helped to avoid some of the unnecessary operations, and to do a better operation when operation was necessary.

Removal of Foreign Bodies by Bronchoscope and Esophagoscope.

DR. HENRY L. SWAIN, New Haven, stated that inventions or improvements on old methods were usually the results of necessity or defects and deficiencies in the older means adopted to each certain end. The old methods of examining the throat were subject to limitations. One could not examine the larynx much less do delicate operations on it, or introduce an anesthetic, except under almost insurmountable difficulties. Young children and older unwilling children could not be coerced into permitting examination by the indirect method, and not being able to accomplish it under an anesthetic, diagnosis and treatment of diseases of the larynx and trachea were unsatisfactory. Diagnosis of diseases of the esophagus was relegated entirely to the sense of touch which of course never permitted sight of a lower level than just back of the arytenoid cartilage. If a foreign body was in a small bronchus it was almost impossible to remove it even by tracheotomy and even then no one ever thought of using a reflected light to locate and aid in removal. When a foreign body was in the esophagus, it was inexactly located and then literally fished out by aid of various ingenious devices. Dr. Swain also called attention to the value of the *x*-ray in locating these foreign bodies, especially in conjunction with the bronchoscope.

General Pathologic Conditions Occurring With Uterine Fibroid.

DR. HENRY G. ANDERSON, Waterbury, said that it was probable that uterine fibroid was not only a local disease but that the process was practically a general one influenced by the presence of, or by products from, the uterine growth. These changes included degenerative processes in the circulatory system as anemia, thrombosis and embolism. Degenerative changes of the heart and kidney are often observed. These changes influenced the question of operation and might of themselves make the demand for operation imperative.

Bier's Hyperemia.

DR. ALFRED M. ROWLEY, Hartford, explained the method of application of this form of treatment in acute rheumatism and gonorrheal joint affections, and reported three cases showing good results. A third case demonstrated the prophylactic value of early hyperemia in streptococcus infections, illustrated by the treatment of two vaccinations received at the same time on either hand; one wound treated with early constriction healed in four days, the other was treated with late hyperemia and required incision and three weeks for healing.

Prognosis in the Suture of Nerves.

DR. ERNEST A. WELLS, Hartford, merely mentioned the primary suture of nerves and dealt chiefly with secondary suture and with the readjustment and anastomosis of nerves for the cure of certain forms of well-localized paralysis. The number of cases reported is comparatively small, but the number of cases amenable to this form of treatment seems to be increasing as attention is called to the possibilities offered by it. He reviewed the literature and discussed thirty-five operations for the cure of facial paralysis, including one reported for the first time. He also discussed fourteen cases of anastomosis of nerves other than facial for the cure of paralysis.

Etiology and Treatment of Puerperal Infection.

DR. W. L. BARBER, Waterbury, gave a brief history of the disease before and after the discovery of the organism. He ascribed the cause, as usual, to the neglect of the obstetrician and midwife in securing and maintaining asepsis for the patient during and after labor. He thought that midwives were not sufficiently educated in aseptic methods. He believed that the position of the child should be determined, if possible, by external abdominal examination. Normal labor was expedited too frequently, he asserted, by use of instruments; chloroform should be used in any stage of labor, if necessary; the uterus should be well contracted, and all tears should be repaired. The causes of elevation of temperature should be sought for at once; if it occurred within 24 hours, it depended usually on some infection within the system—autogenetic—primarily of gonorrheal origin, or from pyosalpinx, or vulvovaginal abscess. He thought that a correct diagnosis of puerperal infection should be made from a culture taken from the lochia. In the curative treatment, he removed from the uterine cavity all the toxic-producing débris by his fingers, if possible; then flushed with salt solution. The fever subsided in a few days if sapremic. When the infection was of streptococcal origin, the uterus should not be washed out. The exudate following puerperal infection was absorbed as a rule; but, when not and suppuration was assured, he advised incising and draining. Hys-

terectomy might be useful if the uterus alone were involved, but never in any case with involvement of the peritoneum. He believed that early abdominal incision, with flushing of the peritoneum and drainage through Douglas' space should be employed. The only medication useful was alcohol and strychnin in large doses. It was more rational to follow the bacteria in the blood with the mercury than with the silver salts. Injections of salt solution were always of advantage. Serum was of little use. In concluding he asserted that puerperal infection could not be eliminated from the list of diseases while present careless habits controlled the attendants.

Treatment of Typhoid and Its Complications.

DR. CHARLES J. FOOTE, New Haven, discussed the milk diet in typhoid from the following standpoints: The objections to the use of milk; the need of more carbohydrates in the diet; the indications for the use of alcohol in typhoid, the physiologic effects as shown in recent studies, and their bearing on the use of alcohol in typhoid; the relation of alcohol to susceptibility to infection, intestinal antiseptics in typhoid; typhoid primarily a septicemia and not an intestinal infection; the real value of intestinal antiseptics.

Pleurisy With Effusion.

DR. NELSON POMEROY, Waterbury, said that in the treatment of a serofibrinous pleurisy the physician should aspirate as soon as possible and repeat the operation at the first sign of a reaccumulation of the fluid. This treatment had the following advantages: It was easily and safely done; it relieved and shortened the local inflammation; it removed in a few moments a quantity of fluid which could not be removed through the kidneys and bowels in many days; it prevented carnification of the lung and the formation of adhesions; it prevented congestion of the lung on the unaffected side; and probably in many cases secured exemption from empyema.

Other Papers Read.

The following papers were also read: "Early Diagnosis of Cerebral and Spinal Tabes," Dr. John C. Lynch, Bridgeport; "Grocco's Sign," Dr. George Blumer, New Haven; "Gastrojejunostomy," Dr. Edward W. Smith, Meriden; "A Case of Family Periodic Paralysis," Dr. Max Maihouse, New Haven.

AMERICAN ACADEMY OF MEDICINE.

Thirty-third Annual Meeting, held at Chicago, May 30 and June 1, 1908.

The President, DR. THOMAS D. DAVIS, Pittsburg, in the Chair.

The officers elected were named in THE JOURNAL, June 6, page 1913.

An amendment to the constitution was adopted providing for the election as associate members of those who are not physicians, but who have the required preliminary degree, and who are working along sociologic, educational and other scientific lines.

Education of the Public in Medical Matters.

DR. EDWARD JACKSON, Denver, chairman of the committee, appointed to recommend the best means for the medical profession to assist in education of the public, recommended that the academy provide for the placing before the public of such papers and reports read before its meetings as would be of value in the work of popular education in medical subjects, such work to be furthered through the exchange list of the *Bulletin*. On that list educational journals and popular science publications should be represented, as well as foreign or domestic medical journals and scientific transactions. It was recommended that the individual members continue their active interest in the various educative movements, and that the academy itself continue its studies, discussions and recommendations, regarding the teaching of physiology and hygiene in the schools; that it encourage original papers on the education of the public in medical matters and provide for exchanges with publications devoted to education and popular science; and, further, that at an early meeting it arrange for a discussion of the education of the public by the physician in active practice through his patients.

DISCUSSION.

DR. CASEY A. WOOD, Chicago, cited Helmholtz as the first noted man to proclaim it an essential function of the medical profession to teach the public on matters medical. Dr. Wood believes it the duty of the profession to teach the laity, all opinions to the contrary notwithstanding. He considers the public press a much more effective medium than the distribution of pamphlets.

DR. HENRY B. HEMENWAY, Evanston, Ill., urged the importance of impressing on the public the need of public sanitation. The prevalent ignorance of the laity was shown in the fact that the United States Government had to exclude from its publications the vital statistics of most of the states because of inaccurate records. Lectures for the education of the public, to be efficient, must be divorced from personal ends. To accomplish this the lecturer should be paid.

DR. LEARTUS CONNOR, Detroit, urged that the physician who would educate his community must live as he would teach. In Michigan there was a movement under the Board of Health whereby those with a knowledge of sanitation were led to instruct the uninformed.

DR. PHILIP ZENNER, Cincinnati, thought that unsigned but authoritative medical articles in the daily press would eventually be read as eagerly as the baseball news now is.

DR. HENRY F. GOODWIN, Chicago, protested against such instruction as that in the Chicago *Tribune* for the arrest of hemorrhage by filling the wound with cobwebs collected from walls, etc.

DR. JOSEPH K. WEAVER, Norristown, regarded the county medical society as the proper medium of instruction between the medical profesion and the laity.

DR. THOMAS H. SHASTID favored the work of the *Youth's Companion* in publishing half column articles on medical matters. He strongly advocated the publication of medical articles in farm journals.

DR. JOHN H. TRESSEL, Alliance, Ohio, spoke of the strong desire on the part of the farmer for instruction in matters of hygiene.

Report of Committee on Medical Education.

DR. CHARLES MCINTIRE, chairman at the conference in Pittsburg in January, reported the opinion of the committee that there was a definite field for the academy in the discussion of the educational requirements of the intending physicians, viz.: the harmonizing of the courses in the literary and medical colleges, emphasis being given to the desirability (not necessity) of a broad liberal culture precedent to the study of medicine, and the shaping of the liberal culture course to include those sciences which lie at the foundation of medicine, that they need not be taken again in a medical course.

DISCUSSION.

DR. LEARTUS CONNOR, Detroit, thought no medical school should grant a diploma until the graduate had filled a hospital interneship for at least a year.

DR. L. HARRISON METTLER, Chicago, wished there might be some authority to determine the man best fitted for certain chairs in colleges. He believed that the standard of medical education ultimately resolved itself to the character and knowledge of the faculty. The German plan of having the whole university scheme under one head he thought approximately solved the problem, for the student thus continued his studies with the teacher from whom he acquired the most knowledge; and this reacted on the teacher.

DR. WINFIELD S. HALL, Chicago, agreed with Dr. Mettler that the power of choice on the part of German students was a valuable educative factor. A plan in vogue in Chicago which resulted somewhat as the German system was the holding of clinics in medical schools at which attendance was more or less optional with the student. He believed that should the licensing board require a year's experience in hospital work before granting license to practice, the suggestion of Dr. Connor could be made practicable.

DR. HARVEY observed that in Massachusetts while about 150 medical students were graduated every year, there were hospital interneships for less than fifty.

DR. L. CONNOR believed that the state boards of examiners would require such provision only if backed by public sentiment.

The Doctor and the School.

DR. THOMAS D. DAVIS, in his presidential address said that on no important medical subject was the physician so seldom consulted as on school hygiene. It was possible also that there was no object which he was so ill prepared to advise. In sharp contrast to the fact that school boards do not seek the advice of physicians concerning location of school buildings, he said, was the fact that the generals of the Japanese army were not allowed to pitch their tents until the medical officers had approved the locations. Medical men should insist on the acquisition of large tracts of ground for school yards and play grounds, as a matter of economy as well as of hygiene. The arrangement of rooms for the convenience of teachers and scholars had its hygienic as well as its pedagogic side. Dr. Davis believed that in the matter of heating school rooms the best results were obtained by heat supplied by direct radiation from hot water or steam coils, fresh air being introduced through the window sash and by opening all the windows every three-quarters of an hour. The advantages of the inclusion of physical culture in the curriculum were considered. Such exercises must be carefully selected and adapted to the age and condition of the child. Medical advice should have a place in college athletics. The football controversy should be settled by physicians rather than by college presidents. Attention was called to the medical inspection of school children and the necessity for and advantage of such examination, which should be aided by the cooperation of teacher and parent. The importance of the teaching of physiology and hygiene was emphasized and the belief expressed that such teaching of hygiene would do much in its relation to morality and purity to elevate the next generation.

Second International Congress on School Hygiene.

DR. HELEN C. PUTNAM, Providence, R. I., delegate, briefly outlined the main features of the congress. There seemed need she said, of an international commission to unify inspection methods for purposes of compilation and comparison. Oral sepsis and the influence of inspection on the incidence of diseases were of special interest. In the section on hygiene of the teaching profession, statistics were quoted showing that in Canada and the United States tuberculosis was more prevalent among teachers than among any other class; but this was not the case in European countries. Two sections indicated tendencies to classify children according to physical and mental capacities, and recommended less "machine work," more individual attention. Emphasis was laid on supplementing physical and psychical elements of formal drill with others of initiative and exhilaration through games and dancing. Suggestive items as to fatigue were reported from child-study laboratories in the section on psychology of education. At present, it was pointed out, children at school underwent depression throughout the year without sufficient holidays for effective recovery; over 75 per cent. failed to follow the curriculum prescribed as suitable for their ages and abilities—the greater number of failures being among those who had been in kindergarten—due to insufficient knowledge and application of physiologic and psychologic laws of childhood. Temperance instruction seemed the feature of the schools most interesting to foreigners; then, co-education. Instruction in the physiology and hygiene of sex was an international problem. Parental incapacity and environmental difficulties out of school were frequently discussed. Out-of-school hygiene was the title of one section. The point most insisted on in the final resolutions was much better work by institutions for training teachers. It was stated that the proceedings could be obtained through Dr. James Kerr, honorary general secretary, Royal Sanitary Institute, Margaret St., London, W. C.

DISCUSSION.

DR. PHILIP ZENNER, Cincinnati, remarked that the teaching of sexual hygiene carried out in the public school of one of the poor districts of Cincinnati had resulted in an altogether different moral tone among the pupils.

DR. HELEN PUTNAM referred to the instruction in sex hygiene carried on through the efforts of the American Society of Sanitary and Moral Prophylaxis. In Philadelphia in the school gardens the subject was approached from a biologic viewpoint, enbracing a study of flowers with their reproduction, and of insects. It was there taught that the two objects of every living being were to perfect and to reproduce itself. Attention was not especially drawn to human reproduction, but the plan was a means of approaching indirectly the fundamental elements of life and demonstrated what might be done in this respect in the public schools.

(To be continued.)

NORTH DAKOTA MEDICAL ASSOCIÀTION.

Annual Meeting, held at Grand Forks, May 12-13, 1908.

The President, DR. CHARLES V. MACLACHLAN, New Rockford, in the Chair.

Address of Welcome.

The association was welcomed by Senator J. D. Taylor, M.D., mayor of Grand Forks.

The response in behalf of the association was made by Dr. F. R. SMYTH, mayor of Bismarck.

Progress in Medicine.

DR. CHARLES V. MACLACHLAN, New Rockford, in his presidential address, felicitated the association in greeting so many representative men of the profession from the various sections of the state, and welcomed a number of distinguished visitors from sister state associations. He discussed the recent progress made in many branches of medicine, especially in the study of infectious diseases. In pneumonia, now becoming so common in the northwest, attention was called to the occurrence of icterus, a well-marked case of jaundice indicating a grave prognosis, as this in itself seriously altered the heart's action, causing dilatation and incoordination in an already overburdened organ.

Dr. MacLachlan said that the discussion of the spread of tuberculosis and its prevention and management by the individual by the state and by the nation opened up a subject in which there was great diversity of opinion, yet a unanimity in conviction that organized effort, colossal in character, must be instituted without delay that the fearful progress might be stayed. This young and vigorous commonwealth was abundantly capable of taking care of its own afflicted. Of fresh air, sunlight and food, the sheet-anchors in the care of consumptives, there was an abundance. A campaign of education was required to spread information as to how to combat the spread of disease by educating the patient himself, the family, the neighborhood, the county and the state. The judicious expenditure of the money would enable the patient to be treated at home—where care and friendship were united. Dr. MacLachlan urged that at this meeting an appropriation be made sufficiently large to enable each local society to send a delegate to visit the regular committee on tuberculosis and legislation during the session of the legislature, in order that urgent necessity of remedial legislation might be impressed on the governor, the senate and the assembly, a permanent fund obtained and a commission appointed to carry home to the people the necessary education and to provide up-to-date shelter and care for resident consumptives. The State Board of Health should be empowered by legislative act to inspect the buildings, sanitary conditions and administrative conduct of all hospitals throughout the state and license them if they fulfilled requirements. The sanitary conditions of hotels and schools and other public institutions should be similarly inspected.

Physicians of the state should follow more closely the methods of the profession in the East in matters of professional ethics. They should guard against consulting with

the representatives of various "pathies" and "isms," who, according to the standard of the American Medical Association, are "irregular and unreliable."

Proceedings of House of Delegates.

The House of Delegatsc convened daily. The following report was endorsed unanimously, in conformity with the president's recommendation:

Your committee, to which was referred that portion of the president's address pertaining to the practice of some members of the profession assisting or consulting with persons practicing under various "pathies" and "isms" who are not considered up to the standard required by the American Medical Association for membership, begs leave to report that the ethics of the profession discredit the practice suggested in the president's address, and this committee recommends that this society go on record as requiring that its members do not encourage osteopaths and other irregular practitioners by assisting them with council or otherwise in their work.

The report of the secretary showed a substantial gain in membership in the component societies, some of which were doing excellent work and having interesting meetings. The report of the treasurer showed a good balance—sufficient to assist materially in carrying out at least some of the suggestions made by the president in his address.

The Committee on Public Policy and Legislation reported that the only legislation recommended by the committee during the past two years was a vital statistics bill on the lines advised by the U. S. Bureau of the Census. The bill was passed by the legislature and became a law, but without the necessary appropriation to make it effective. The committee recommended that an effort be made to secure a sufficient appropriation at the coming session of the legislature, and the recommendation was approved.

The Committee on Tuberculosis made the following recommendations in its report, which was adopted:

The Committee on Tuberculosis would respectively recommend that the Committee on Legislation be instructed to have drafted suitable bills and to have them introduced at the next meeting of our legislature at Bismarck and to use and exercise all legitimate means at their disposal to have the same become a law, these bills to embody the principles herein set forth, to wit:

1. That the appropriation for the use of the Department of Public Health be increased to at least $7,000 per annum, making it possible for the department to carry on an aggressive policy along sanitary and educational lines. Your committee is of the opinion that the health and welfare of our citizens should at least receive as much consideration as that of our dumb animals. The Live Stock Sanitary Board has an annual appropriation of $7,500, while our Department of Public Health has an appropriation of $2,700 annually.

2. That it be made mandatory for attending physicians to report to the Department of Public Health all cases of tuberculosis coming within their knowledge to the end that the parties so infected may be supplied with suitable and reliable information relative to the best methods for the cure of the disease and of the precautions necessary in order to avoid transmitting the disease to others.

3. That spitting on a sidewalk or floor of any public building, cars, or any sort of public conveyance be declared a public nuisance, dangerous to public health, and on conviction shall be punishable by a fine of not less than five dollars or by imprisonment in the county jail not to exceed thirty days, or both.

4. That suitable and sufficient sanatoria be established and maintained at some proper and desirable location within the state and at its expense where approved and up-to-date methods may be employed for the relief of those who may be admitted therein for care and treatment.

Endorse Council on Pharmacy and Anti-Nostrum Work.

The Grand Forks Medical Society, through its delegates, introduced the following resolutions passed by that society Feb. 12, 1908. They were adopted:

WHEREAS, The American Medical Asscciation has established a Council on Pharmacy and Chemistry, composed of scientists of world-wide reputation and standing, whose function is to examine pharmaceutical products in order to be able to inform the profession as to the actual composition of said products; and,

WHEREAS, After careful examination of many of said products, it has officially announced its approval of a large number of them, and, in order to make clear to the profession the methods and purposes of the work, has published exposures of a large number of the fraudulent preparations that have been foisted on the members of the profession and through them on the public by interested owners and manufacturers, frequently laymen, ignorant of the use of drugs, except their meretricious use, as examples of the much larger number which they have found of little or no value or positively harmful; and,

WHEREAS, We believe that every physician in North Dakota is vitally interested in the work of this Council and desires in every possible way to promote its usefulness and interest; and,

WHEREAS, The greatest aid to the nostrum manufacturers in their nefarious and avaricious work has been the medical press, whether controlled by medical organizations or interested lay firms; and,

WHEREAS, We believe the time has arrived when the great profession of medicine and all agencies controlled by it should divorce itself permanently, finally and forever from those interested who like ghouls prey on the sick and afflicted through the commercial sale of nostrums and dishonest so-called proprietary medicines; now, therefore, be it

Resolved, By the Grand Forks District Medical Society, in regular session assembled, That we heartily endorse the formation of the Council on Pharmacy and Chemistry, and that we extend it our confidence and congratulations on the splendid work already accomplished and that we pledge it our unanimous support in its purpose of freeing our profession and its publications from nostrum control; and be it further.

Resolved, That in pursuance of this object we hope each county society in North Dakota will devote a special session to consideration of this important question with a view of securing the active aid of every licensed practitioner in the state, and that the council of this association be requested to omit from the advertising columns of the journal all pharmaceutical preparations which are not manufactured in conformity with the United States Pharmacopeia or the National Formulary until they have been approved by the Council on Pharmacy and Chemistry of the American Medical Association; and be it further

Resolved, That we request every physician in the Grand Forks District to secure a copy of the abridged U. S. Pharmacopeia and National Formulary and be guided by this and the approval of the Council on Pharmacy and Chemistry in the use of medicines; and be it further

Resolved, That our council be requested to communicate with the editors, owners, collaborators and publishers of the medical journals of the country on this subject, and to announce to the profession of North Dakota, through the columns of *The Journal* of the American Medical Association and such publications as are willing to assist the profession by freeing their columns of nostrum advertising, and we hereby pledge our support to such journals even if they find it necessary to increase their subscription rate; and further be it

Resolved, That we expressly condemn the publication of so-called medical journals by interested owners and manufacturers of nostrums, and request the profession of the state to decline to receive them.

Approval of State Public Health Laboratory.

A Public Health Laboratory was established by an act of the last legislature at the State University and School of Mines, and in appreciation of this needful legislation, the association approved the following:

Resolved, That the North Dakota State Medical Association fully appreciates this act of the legislature and desires to emphasize the inestimable value to the people of the work of this laboratory in assisting to conserve public health. It believes that the perpetuation and concentration of the work at this institution will bring additional benefits to the people of this state and that it should receive the earnest support of all our citizens as well as that of the medical profession. It also endorses the initiative work of the present director, Dr. Gustav F. Ruediger, in bringing the laboratory up to its present efficient standard and commends him for his earnest, conscientious and capable work.

Officers Elected.

The following officers were elected: President, Dr. Henry A. Beaudoux, Fargo; first vice-president, Dr. J. E. Countryman, Grafton; second vice-president, Dr. John D. Taylor, Grand Forks; third vice-president, Dr. R. H. Beek, Lakota; secretary, Dr. H. J. Rowe, Casselton; treasurer, Dr. John Dempsey Taylor, Minot.

The association meets at Fargo in 1909.

RHODE ISLAND MEDICAL SOCIETY.

Ninety-seventh Annual Meeting, held at Providence, May 26-28, 1908.

The President, DR. CHARLES V. CHAPIN, Providence, in the Chair.

The secretary's annual report showed 386 members; of these, 345 were resident, 29 non-resident, and 12 honorary. The library committee reported 22,000 books in the library. During the year, 371 bound volumes, 278 reprints, and 226 pamphlets were added.

The trustees of the Fiske prize fund reported that a prize of $200 had been awarded to Dr. Frank R. Vale, Washington, D. C., for his essay on the subject, "Has Surgical Treatment Lessened the Mortality from Appendicitis?"

For 1909 a prize of $200 is offered for the best essay on "The Mode of Infection and the Duration of the Infectious Period in Scarlet Fever."

For 1910 a prize of $200 is offered for the best essay on "The Classification and Treatment of the Diseases Commonly Known as Rheumatism."

The trustees of the Chase-Wiggin fund announced that a prize of $75 was awarded to Dr. J. M. French of Milford, Mass., for his essay on "Tea and Coffee as Drinks."

For the year 1909 a prize of $75 is offered for the best popular essay on "The Nature of Alcoholic or Intoxicating Drinks and Their Evil Effects on the Human System."

Sanitary Problems.

The President, DR. CHARLES V. CHAPIN, in his annual address on "Some Sanitary Problems," said that although much yet remains undone, much has already been accomplished. Among the sanitary successes of the last century have been the cleaning of cities, the providing of pure water, the removal of waste, the scientific purification of water and sewage, the building of special hospitals for the isolation and treatment of those suffering from contagious diseases and the substitution of effective inspection for burdensome and ineffective quarantine.

Case of Brain Tumor.

DR. WILLIAM MCDONALD, JR., Providence, reported a case of brain tumor and exhibited the specimen. The tumor was a glioma and occupied nearly the whole of one hemisphere. In spite of the extensive destruction of the brain, the patient remained quite rational for a long time.

Laryngeal Diphtheria.

DR. IRVING S. COOK, Georgiaville, reported a case of diphtheria which involved the larynx and trachea. Antitoxin failed to relieve and preparations were made to operate when the child had a severe coughing spell and coughed up a long membrane which was a perfect cast of the trachea and primary bronchi and which on one side showed two extensions into secondary bronchi.

Actinomycosis.

DR. NATHANIEL H. GIFFORD, Providence, read a paper on "Actinomycosis." He briefly reviewed the subject and reported the first case to be presented to the society. The patient was a male, aged 56, who had been accustomed to suck pieces of straw. When first seen, the disease had made such progress in six weeks that the patient was unable to separate his jaws more than a quarter of an inch. The right jaw and the tissues below presented an irregular tumor, the size of a small orange, and on its surface were several soft and inflamed spots. This and some small abscesses which formed, were opened and drained. Internally, iodid of potassium was given and in about six months the man made an excellent recovery. The fungus was shown under the microscope.

DR. WILLIAM C. MONROE, Woonsocket, read a paper on "The Health Problems of the Smaller Cities."

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. Frank B. Fuller, Pawtucket; vice-presidents, Drs. Eugene Kingman, Providence, and Augustin A. Mann, Central Falls; secretary, Dr. Stephen A. Welch, Providence; treasurer, Dr. George S. Mathews, Providence. Dr. G. T. Swarts, Providence, was appointed to serve for three years on the Committee on Medical Education of the American Medical Association, an dalso to serve on the Committee on Medical Legislation of the American Medical Association.

AMERICAN ORTHOPEDIC ASSOCIATION.

Twenty-Second Annual Meeting, Held in Chicago June 4-6, 1908.

The President, DR. HENRY LING TAYLOR, New York, in the Chair.

The President, in his address, discussed the "Present Day Needs of an Orthopedic Service."

DR. ROBERT B. OSGOOD, Boston, secretary of the Association, presented the memorial to Albert Hoffa.

Treatment of Joint Tuberculosis by Marmorek's Serum.

DR. ALBERT H. FREIBERG, Cincinnati, reported the progress of cases described at last year's meeting, and giving some new cases treated since. He said that the serum had no influence on the temperature in any severe case, but that in cases of ordinary unmixed infection the temperature seemed to become more nearly normal than before the administration of the serum.

Treatment of Rheumatoid Arthritis.

DR. FRANK E. PECKHAM, Providence, R. I., gave the results of the treatment of villous, atrophic and infectious arthritis, by electric and other baths, vibration and gymnastics.

A New Treatment for Old Tuberculous Sinuses.

DR. JOHN RIDLON and DR. WALLACE BLANCHARD, Chicago, described this treatment which consists in injections of bismuth and petrolatum emulsion.

DISCUSSION.

DR. EMIL BECK, Chicago, spoke of some of the limitations of the method, so as to put orthopedists on their guard against them. He thinks, however, that its use is not attended with much danger, there having been no bad accidents from it. It should not displace other methods.

DR. H. AUGUSTUS WILSON, New York, said that the first fluid, melting at a lower point, is better for small sinuses, and said that the second, hardening with great rapidity, would enter with more difficulty.

DR. GWILYM G. DAVIS, Philadelphia, asked whether or not any bad effects are likely to arise from the use of paraffin and petrolatum, these being minerals and apparently almost unabsorbable. He has not used bismuth, but has used a mass of iodoform, wax and oil of sesame or olive oil.

DR. A. H. FREIBERG, Cincinnati, had used for several years a thin suspension of bismuth for the purpose of diagnosticating the extent of these fistulous tracts. He thinks, however, that so long as destruction at the seat of disease is going on, it would be useless to close the fistula.

DR. PHILIP HOFFMAN, St. Louis, said that he wondered whether or not some of the many sinuses shown in radiograms of such cases might not be dissection-sinuses produced by the force used in injecting the bismuth.

DR. RUGH stated that in the postmortem examination of a part of the face that had been injected subcutaneously with paraffin for the correction of a deformity, it had been found that Nature was appropriating the material by throwing out new tissue through the injected mass, thus making it actually a part of the body.

DR. BLANCHARD said that the bismuth was not intended as a treatment for the tuberculosis, for which the patients were being treated at the same time by other means. He has found no bad mechanical effect from the injections. The method was not used in cases of acute inflammatory conditions, but only for old chronic sinuses and to open two abscesses. He saw no reason for changing the formulas employed.

The Influence of Weight Bearing on the Treatment of Tubercular Joint Disease.

DR. VIRGIL P. GIBNEY, New York, presented this paper.

DISCUSSION.

DR. H. A. WILSON, New York, said that by this method he has obtained both the best and the most disastrous results that he has ever encountered. He was surprised at the manner in which one patient's legs developed and apparently became swollen from some kind of pressure. In order to prevent the weight-bearing from producing luxation and consequent shortening, the limb, when the plaster is applied, should be held in a position of slight flexion, abduction and external rotation.

DR. EDWARD H. BRADFORD, Boston, said that he had seen a certain number of patients treated for hip disease with weight-bearing and a short spica without immediate benefit, and in whom recovery was a slow and extremely painful process. He thinks that the splint treatment has been carried to the point of absurdity. He thinks that patients should not be allowed to run around on diseased hips, even if they are abducted. He does not consider the appearance according to the *x*-ray photograph conclusive evidence as to the real condition present. The question should be considered from the standpoints of pathology and clinical results, and he believes that although weight bearing is justifiable and salutary in some cases, in others fixation and compression or traction should be employed.

DR. DAVID SILVER, Pittsburg, mentioned a case in which the result from the use of this method had been that the head

of the femur was entirely destroyed, leaving just the remains of the neck.

DR. COMPTON RIELY, Baltimore, said that patients should not be kept in traction too long. Attempts should be made at short intervals to see whether the patient could not get along with the spica.

DR. ARTHUR J. GILLETTE, St. Paul, said that some patients do better with immobilization, some with extension, and some with both. No hard and fast rule can be laid down.

DR. JAMES K. YOUNG, Philadelphia, said that his experience with the Lorenz method has been gained in treating patients who came to him with abscesses and other troubles after having been treated according to that method by other men.

DR. TAYLOR said that he does not feel ready to accept the dictum that all cases can be successfully treated with the spica. A great many patients do fairly well under this treatment while in the hospital, but within a short time after leaving that institution they come to the out-patient department with legs swollen.

DR. V. P. GIBNEY, New York, said that the method was known before Lorenz was thought of. He does not treat all his patients in that way. He has not found radiograms always satisfactory, and hopes by the end of another year to have some statistics to present on the subject of the results of this method of treatment.

CANDIDATES' THESES.

1. Deformities in Feeble-Minded Children.

DR. E. H. ARNOLD in his thesis said that the conspicuous findings are the following: The preponderance of females, the high percentage of Hebrews, the comparative sterility of the parents, the large number of families having more than one defective child, the fact that instrumental delivery is a possible cause in some cases, the large proportion of smooth-breathers, the tardy beginning of walking and talking, the prevalence of left-handedness, the fact that very few feeble-minded children escape deformity, and the conclusion that most of these deformities are acquired and due to habit. He then considered the prophylaxis in some of these conditions, and the value of educational measures in forming good habits and overcoming bad ones.

DISCUSSION.

DR. B. E. MCKENZIE, Toronto, believes that instead of one of these conditions being dependent on the other, both are due to a common cause—a brain-lesion at some time, and frequently before birth. In correcting these deformities he depends greatly on education. If he can not have the cooperation of the patient, as is impossible in the feeble-minded, he hesitates to enter on the more distinctly surgical aspect of the correction of deformities.

DR. YOUNG said that forceps are often used unnecessarily, and their use often results in the deformity of the child.

MR. ERNEST MUIRHEAD LITTLE, England, said that in a certain proportion of spastic cases the pressure of the forceps probably causes the lesions with which the surgeon has to deal.

2. Tuberculin in Orthopedic Surgery. Clinical and Laboratory Reports.

DRS. JOHN JOSEPH NUTT and T. W. HASTINGS based their paper on twenty-two cases of joint tuberculosis, and described fully the details of the administration of the tuberculin.

DR. CHARLES F. PAINTER, Boston, said that he has had many cases in which this treatment was used, but that the results had not been so satisfactory or so encouraging as those in Dr. Nutt's series.

DR. CHARLES OGILVY said that the opsonic index is of little practical value, and that some patients improve under injections of tuberculin much more quickly and satisfactorily than others.

3. Mechanical Lesions of the Sacroiliac Joints.

DR. RALPH R. FITCH reported twenty-two cases, divided in groups according to etiology. Treatment began with support, and he described a method of applying plaster-of-Paris jackets with the back in a hyperextended position without special apparatus.

DISCUSSION.

DR. PAINTER said that manipulation under anesthesia often gives relief that mechanical measures do not afford, and gave the details of an illustrative case.

DR. ANSEL G. COOK, Hartford, Conn., called attention to a new symptom of the condition, first suggested to him by Dr. William Porter, of Brooklyn. This is the fact that pain can be elicited by pressing on the joint from the rectum, when no pain can be elicited by pressing on it from the other side.

DR. R. E. FITCH said that he does not know of the presence of any one definite symptom. He has seen one or two cases with pain referred to the coccyx and without pain elsewhere.

4. The Non-operative Treatment of Fracture of the Femoral Neck.

DR. A. M. FORBES referred to the grave prognosis in medial and intracapsular fractures, and the decreasing tendency to osseous union as the fracture approaches the smaller portion of the neck near the head. A consideration of the anatomy of the fracture and the anatomic principles of treatment and a critical review of the methods of treatment that have been advocated led him to conclude that under certain forms of treatment there is probably a more hopeful prognosis than most surgical writers indicate.

DISCUSSION.

DR. HOFFMAN gave the details of several cases in old women treated by the Whitman method, in each instance some time after the accident occurred, with good results. He thinks if good union could be secured under such adverse conditions, to get it must be merely a matter of technic. He remarked that a person inexperienced in the application of the plaster-of-Paris could make the patient very uncomfortable. Pads should be used, and then the patients are more comfortable than with the old traction method. They can be shifted around in bed and bedsores do not occur.

DR. AARON J. STEELE, St. Louis, considers fracture of the thigh bone to be due to old age, at which period changes take place that cause the thigh to be broken very easily. He referred to what might be called a figmental ligament, a thickening of the capsular ligament running along the under side of the neck, and said that when the thigh bone is fractured from a slight cause in elderly people the figmental ligament may act as a splint and hold the parts of the bone together. If in such cases the patients are confined to bed and slight traction made, the union would probably take place without much trouble.

DR. FORBES said that Whitman's method is best in the cases of young patients, but that Maxwell's is better in elderly persons.

5. The Cause of Atrophy in Joint Disease.

DR. ARTHUR T. LEGG gave the results of a comparative study of the atrophy of disuse alone and that caused by joint irritation. The results of animal experiments led him to conclude that, since the atrophy of disuse is brought about in a complex way by the vasomotor system controlling the nutritive equilibrium of the body, the atrophy seen in joint disease is brought about in the same way, namely, through functional inactivity.

DR. HOFFMAN said that bandaging with traction probably also tends to produce atrophy. He thinks, however, that the atrophy is more due to non-use than to mechanical interference.

DR. MCKENZIE said that in the affected limb the gluteal muscles are subjected to more strain than in the other limb in having to keep the joint at rest yet their atrophy is usually marked. It would be difficult to explain why bone-atrophy is also a distinct factor in hip disease.

6. The Anatomy of Congenital Dislocation of the Hip; a Further Study.

DR. W. G. TURNER discussed some of the anatomic causes predisposing to the occurrence of dislocation and the importance of proper fixation adapted to anatomic conditions. He demonstrated the class of cases in which the axillary abduc-

tion position is indicated, and showed diagrams of seven cases illustrating the varieties of skeletal variations previously discussed.

DISCUSSION.

DR. RIELY said that in his experience the neck of the femur was twisted forward, instead of backward, in all but one case. He referred to some radiograms, exhibited soon after Lorenz's visit, in which the trochanter, instead of the head, was in the acetabulum. These cases had had a posterior twist; and the neck, instead of being twisted back on the shaft, was twisted forward. A great deal of difference in the result is produced by the position of the leg when the plaster is applied.

SYMPOSIUM ON BONE DISEASES.

Actinomycosis of the Ribs and Vertebræ.

DR. JAMES K. YOUNG said that in this case there was no history of exposure to the contagion. The disease began with difficulty of deglutition. A large scapular abscess was followed by infection of the ribs and dorsal vertebræ. An operation was performed, but the disease continued to extend and had a fatal termination.

Myositis Ossificans.

DR. CHARLES F. PAINTER described two principal types of this disease, the progressive and the traumatic, and reported two cases, considering the etiology, the gross and microscopic pathology, the clinical course, the operative and medicinal methods of treatment, and the prognosis.

Three Cases of Blastomycosis Resembling Bone Tuberculosis.

DR. EDWIN W. RYERSON, Chicago, said that the first patient, a young man, apparently suffering from an old knee-tuberculosis, had an acute localized suppuration in the outer malleolus, followed by similar affections in many other joints. The second case was that of a young man with apparent dorsal Pott's disease and pulmonary tuberculosis, who developed typical blastomycosis. Both cases were fatal, and an autopsy was obtained in each.

Bone Fragility and Eburnation of Rickets.

DR. WALLACE BLANCHARD, Chicago, said that rachitic bone may be so friable that the long bones of the legs may break under the body weight, and with a change of diet and environment may eburnate in two months to nearly the solidity of adult bone. He presented cases showing a quick change of bone structure from extreme friability to comparative solidity and strength.

Discussion on Bone Diseases.

DR. F. H. ALBEE added two more cases of myositis ossificans to those reported by Dr. Painter and exhibited *x*-ray pictures. In the second case there was no history of injury and no pain, just a flexion deformity at the knee-joint.

DR. RIELY described a case that he had seen and believed to be myositis ossificans. There were flat, hard plates at various portions of the body, some of which were permanent and some transient. The patient had had rheumatism and had rheumatic endocarditis.

MR. LITTLE referred to one of Dr. Blanchard's cases, in which after an operation for bow-legs, a knock-knee had appeared, resembling a case of retrogressive rickets. He believed such cases to be more common than is generally supposed. Some surgeons believe them to be osteomalacia and not rickets, but the postmortem microscopic appearance in one of his cases had been those of rickets. He asked for the experience of the members in regard to the prevalence of late rickets, and also desired to know whether or not they thought it of any use to do an osteotomy in such cases.

DR. PAINTER said that he had had an undoubted case of osteomalacia some years ago, and had lately had one of adolescent or recrudescent rickets. Both had developed at about the age of puberty, and in both the attempt to take out the bend proved fruitless. He thinks that recrudescent rickets is a form of osteomalacia.

DR. H. L. TAYLOR mentioned a peculiar case seen by him and Dr. Albee within a few weeks, in which the diagnosis of myositis ossificans was made, but in which an *x*-ray disclosed a needle.

DR. DAVIS thinks that the condition known as Madelung's disease might be a condition of late rickets. In this disease subluxation occurs at some points, progressing to a moderate degree, and then remaining stationary. He had such a case in which good union was secured after osteotomy.

DR. BLANCHARD said that he believed it to be thoroughly understood that adolescent rickets is different in nature and pathology in every respect from infantile rickets.

(To be continued.)

NEW HAMPSHIRE MEDICAL SOCIETY.

One Hundred and Seventeenth Annual Meeting, held at Concord, May 14-15, 1908.

(Continued from page 246.)

The Treatment of Acute Intestinal Obstruction.

DR. CHARLES L. SCUDDER, Boston, said that there are two groups of intestinal obstruction, the non-mechanical and the mechanical. In the non-mechanical group are included those cases of obstruction: Following contusion of the abdomen and those associated with abdominal inflammatory processes; pneumonia; acute nephritis and after clean laparotomy wounds.

The mechanical group includes the obstructions occasioned by bands, adhesions, kinks, intussusception, volvulus, stones within the gut, and tumor within and without the gut.

The mechanical conditions are of less importance than the local and general vital conditions. Two factors are present in every intestinal obstruction; an obstruction to the lumen of the gut and obstruction to the circulation in the wall of the gut. He emphasized a consideration of the changes in the wall of the gut. Early diagnosis in acute intestinal obstruction admits early operative relief; early operative relief ensures a low mortality. He discussed the surgical procedures in the treatment of an acute intestinal obstruction, and submitted a report with an analysis of 121 cases of acute intestinal obstruction from the Massachusetts General Hospital clinic.

DISCUSSION.

DR. H. L. SMITH, Nashua, said that rarely is an operation performed where there is not reason to be thankful it has been done.

Referring to the question of pain brought out by Dr. Scudder, Dr. Smith described a recent case, where, after an operation, the patient had post-operative hemorrhage, and more or less manipulation had to be done on the peritoneum and bowel without ether. Handling the intestine was not painful, but any tension on the peritoneum or on the mesentery caused severe pains. As the patient was conscious all the time, this was very noticeable.

DR. KEAN said that the cause of the pain is the stretching of the peritoneum, whether in rupture in pregnancy or in appendiceal colic, or anything else.

As to the insertion of the drain, having it come in contact not with the small bowel, but with the large bowel, as referred to by Dr. Scudder, Dr. Kean believed that would explain some of the points made with reference to the small bowel as to vomiting, etc.; that the peristalsis of the small bowel is much more rapid than that of the large bowel.

Vibrotherapy in Gynecology.

DR. AUGUST GUERTIN, Nashua, defined sismotherapy as really mechanical massage, having the action of an aspirating and compressing pump on lymphatics and veins, thereby increasing and diminishing the circulation or congestion of the parts treated, according to the firmness and rapidity of the vibrations employed. He recited the history of sismotherapy and its evolution up to the present time, explaining the treatment fully and clearly, and illustrating it by blackboard sketches. He asked that, though this was a comparatively new style of treatment, it should be given a fair hearing and conscientious study.

DISCUSSION.

DR. I. G. ANTHOINE, Nashua, spoke warmly in favor of this method of treatment, and believed it to be a method of relief advantageous in the treatment of almost all forms of human disease.

The Duty of the Physician as a Teacher.

DR. PHILIP H. GREELEY, Farmington, urged on the profession the necessity of recognizing and fulfilling their duty as teachers of the people along the line of prevention of disease and preservation of vigorous health; for preventive medicine, which stands well in the foreground to-day, in order to be of practical good, must be absorbed by the layman as well as by the physician.

He called attention to the matters of food, clothing, ventilation and recreation, as of unlimited importance in preserving health. They are misused, sometimes carelessly, sometimes ignorantly, and the public should be instructed by the physician regarding them. He urged that special attention be given to the education of children along this line, to the end that future generations might be freer than the present one from preventable disease.

The advancement of preventive medicine is a task which belongs to the medical profession. No other profession or class of people can take this burden from it. A physician must never expect to make himself famous by such work, but with patient zeal, born of love for humanity, he can direct many lives to a much better knowledge of the fundamental laws of health.

DISCUSSION.

DR. F. L. KEAY, Rochester, laid particular stress on the duty of teaching the children in the public schools the principles of physiology and hygiene, together with the causes and prevention of preventable diseases. He expressed the opinion that it is exceedingly difficult, if not impossible, to remove the long-fixed, erroneous impressions of the adult in regard to these matters. He urged that in the teaching of the child lay the opportunity for the ultimate accomplishment of the greatest good.

DR. G. A. TOLMAN said it would seem at first glance that we would better instruct the children les and look more closely after the schoolhouses in which they are instructed. He urged the necessity of looking after the sanitary condition of schoolhouses, especially those in the country, where often practically no attention is given to insure anything like healthful conditions. He had traced a case of typhoid fever in one school district to drinking water which had been dipped out of the river and allowed to stand all day in a pail; and at another time he had traced a case of diphtheria to a closed water closet which he discovered at a certain schoolhouse, and which was in very bad condition. He thought that the physician should take an active part in the work of school boards.

Two Years of Progress Under the Food and Drugs Act.

MR. C. D. HOWARD, Concord, state chemist, gave a complete summary of the work accomplished by this department of the state during the last two years. He said that since Jan. 1, 1907, when the act went into effect, a great many samples had been collected and analyzed, preliminary hearings had been held, and something over one hundred cases had been submitted to the department of justice for trial. While progress was necessarily slow, and there was a tendency in some quarters to find fault, some persons going so far as to declare the law a failure, nevertheless the fact was undeniable that an inconceivable amount of good had been accomplished, though the progress of enforcement was lacking in the spectacular quality which the public seems to have expected.

DISCUSSION.

DR. I. A. WATSON, Concord, stated that the great amount of work accomplished under the act referred to in the last paper was due almost wholly to the efforts of the author of that paper.

Some Conditions of Mind and Body which May Persist After Mutilating Operations on the Female Generative Organs, with Cases.

DR. C. H. HOLCOMBE, Brookline, explained clearly a group of symptoms which sometimes follow operations on the female pelvic organs, and described several complicated cases which came under his observation.

DISCUSSION.

DR. ELLA B. ATHERTON, Nashua, stated that the severity of the symptoms following such operations depends largely on the general condition of the patient before the operation, rather than on the particular lesion for which the operation is performed, which fact was not taken sufficiently into consideration. The speaker called special attention to the point that in all operations to remove the ovaries, if even the smallest part of the ovarian tissue is left, it will be helpful to the psychic condition, as it causes much less of a shock than the complete removal of both ovaries.

DR. A. W. SHEA, Nashua, considered that normal ovaries should never be removed, as not only is the function of reproduction lost, but also the important quality of stamina. Too many of the profession to-day, he said, are good operators rather than good surgeons, devoid of the "surgical conscience," and when an opportunity presents itself to remove, fix, or suspend an organ, they are ready to act without further thought of results. We should study our cases, pay more attention to diagnosis, and operate when our best judgment deems surgical interference the best therapeutic measure.

Acute Infectious Jaundice.

This paper was read by DR. MARION L. BUGBEE, Concord. After giving a complete history of this disease, previously known by several different names, such as abortive typhoid, endemic yellow fever, bilious fever, relapsing fever, and even polyarthritis with absorption icterus, the author described four very interesting cases.

Acute Rheumatism.

DR. J. G. QUINBY, Lakeport, said that rheumatism, though an unscientific and vague word, was one that designated several conditions which have three things in common: 1. Febrile or toxic symptoms, which may be of a general or constitutional character. 2. A localized inflammatory lesion, usually in the joints, though frequently found in the muscles and skin. 3. A great tendency to complicate other conditions by causing certain visceral inflammations, such as the heart, serous membranes, and sometimes the tonsils. The common use of the word rheumatism, or its synonyms, in conjunction with other maladies, such as gonorrheal rheumatism, rheumatic gout, and rheumatoid arthritis, is a misnomer, for it implies an etiological condition which does not exist. No matter whether there is a common antecedent diathesis or not, there is so little in common in the pathological anatomy or symptoms of gout, arthritis deformans and gonorrheal rheumatism, that we should hardly be justified in calling them rheumatism.

He described symptoms and complications, and recommended that care should be taken to separate rheumatism from pyemic states, gonorrheal arthritis, acute tuberculous joint disease, osteomyelitis, glanders, arthritis deformans, acute gout, scurvy, etc., most of which have some diagnostic symptoms not common in rheumatism. Acute articular rheumatism is a self-limited disease, and will generally result in recovery in from one to six weeks.

Eczema and Allied Conditions.

DR. D. R. CHASE, Orford, stated that this condition is one of the diseases of the skin of most frequent occurrence, statistics showing that it forms from 20 to 40 per cent. of dermatological cases reported, and though acne is a more common affection than eczema, yet as many subjects never deem it necessary to submit to treatment, the records of such cases do not figure in the above statistics.

Clinically several types of eczema can be recognized, which require separate description. Dr. Chase then described eczema erythematosum; eczema papulosum; eczema vesiculosum,

eczema pustulosum; eczema rubrum; eczema squamosum; eczema fissum; eczema intertrigo; eczema verrucosum; eczema sclerosum; eczema diabeticorum; eczema folliculorum, and discussed some of the various cases which might be difficult of differentiation, such as acne, dermatitis, erysipelas, erythema, herpes, impetigo, pediculosis, psoriasis, scabies, seborrhea, sycosis, ringworm, etc.

There are no specifics for eczema. Such remedies only should be given as are indicated by the general condition of the individual. Overmedication and dosing with blood medicines are common errors in the management of this disease. The chief object of the constitutional, and also the local treatment, is to remove all sources of irritation to the inflamed skin.

DISCUSSION.

DR. J. M. GILE, Hanover, touched on the point that the mental picture of eczema is never that of a single definite appearance on the surface of the body, but usually one type predominates, and the others, one or more, are present in greater or less measure. He also suggested the necessity of differentiating carefully between eczema proper and parasitic skin diseases, as the treatment in the two groups of cases should be radically different.

The discussion was continued by DR. A. K. DAY, Concord, who referred especially to the infantile eczema, and eczema of the hands, or what is commonly known as salt rheum, and DR. I. G. ANTHOINE, Nashua, who stated that he had used the *x*-ray in a number of cases of eczema, with good results, and the doctor described particularly two such cases.

Medicolegal

Court Extends the Liability of Physicians to Negligence in Removal of Patient After Operation.

The Supreme Court of Iowa says in the case of Haase vs. Morton and another, that the senior member of the defendant firm of physicians, being called to the plaintiff's home to treat her professionally, determined that a surgical operation was necessary. This he suggested it would be safer and more convenient to perform at a hospital, and undertook to and did make the necessary arrangements for performing it there.

Thereafter the plaintiff was taken to the hospital by said physician, who performed the operation, his partner administering the anesthetic.

After the operation, the plaintiff was taken from the operating table and placed on a car or stretcher for the purpose of taking her to her room on the floor below. Both of the physicians assisted in placing her on the car, which was about six feet long and had six rubber-tired wheels, two large wheels in the center and two smaller ones at each end, so that, when either set of end wheels was resting on the floor, the car inclined in that direction.

After the plaintiff had been placed on the car the senior physician left the operating room for the surgeon's dressing room, and his partner and a nurse rolled the car into the elevator room for the purpose of taking it to the room below on the elevator, the physician being in front of the car and the nurse behind it. When they reached the elevator room, they found the elevator door wide open and the elevator below. After the car had been stopped the physician left it, and stepped to the side of the elevator shaft for the purpose of bringing the elevator to their floor. The machinery did not at once respond to his efforts, whereupon the nurse told him that she would go and call the janitor. She then left the car, and, after she had gotten some seven or eight feet therefrom, the physician said to her, "Never mind, I can get it from here." When the nurse turned to go back into the elevator room the car was just rolling into the elevator shaft. She reached it, but too late to save the plaintiff, who was still unconscious, and they were both precipitated to the floor below, some fifteen feet. For injuries received in the fall, the plaintiff brought this suit.

The Supreme Court affirms a judgment for the plaintiff. It says that the evidence tended to show that the physician who was with the car or cart had, before this particular time, assisted in operations at the same hospital, and had also assisted in removing the patients operated on from the operating-room by means of the same cart and elevator. It must therefore be presumed that he was familiar with the size and construction of the cart used in the present instance and with the conditions surrounding the elevator room.

It was shown that the peculiar construction of the cart, the end wheels being lower than the center ones, made it very easy to start. The floor in the elevator room was cement, and the wheels of the cart were equipped with rubber tires, making a combination well calculated to overcome friction. The elevator door was wide open when the cart was stopped by the physician with its front end within a foot of the elevator shaft. The plaintiff was at the time unconscious, and hence wholly unable to look out for herself or appreciate the danger of her position. Notwithstanding these dangerous conditions, the physician not only left the cart himself, but, after being advised by the nurse that she had also left it, he paid no attention to it, and a slight movement of the plaintiff started it toward the open shaft.

The defendants' position on this branch of the case was unsound for two reasons. In the first place, it might well be said that just such a result might reasonably be expected to follow the leaving of such a vehicle in so dangerous a place. Indeed, it seems to the court that an accident might almost be expected to follow as a matter of course. The cart was easily started, and even unconscious persons not infrequently use their physical power; therefore a reasonably careful person would guard against these conditions singly or combined. In the second place, negligence does not depend on the question whether the result of an act might reasonably have been foreseen. The consequences of negligence need not be foreseen. It is enough to constitute negligence if the result of the act is the natural, though not the necessary or inevitable thing to be expected. If ordinary prudence would suggest that the act or omission would probably result in injury, it is sufficient to support the charge of negligence.

It was conceded that the defendants were not responsible for the negligence of the nurse, and the defendants contended that the act of the physician in leaving the cart for the purpose of raising the elevator was not the proximate cause of the accident. But he was one of the persons in charge of the plaintiff at the time in question. He had undertaken to assist in removing her to her room, if he was not in fact in charge of her at that particular time, and he was therefore legally bound to exercise reasonable care in her removal. Whether he exercised such care after he knew that the nurse had left the cart was clearly a question of fact for the jury. If it be said that they were both negligent it did not relieve the defendant for it is the rule that the mere fact that some other cause operates with the negligence charged does not relieve from liability.

Furthermore, the court is unable to agree with the contention of the senior physician who denied liability on the ground that whatever liability existed must rest on the act of his partner, while he was assisting in the removal of the plaintiff from the operating-room to her own room, and insisted that the removal to her private room was not within the scope of the ordinary business of the firm. The defendants were partners in the general practice, and the partnership, acting through the senior member, undertook to perform the operation and did in fact perform it. It was he who advised the plaintiff to go to the hospital where she could be much better taken care of than at her home. He made all of the arrangements at the hospital for the plaintiff and took her there in his own carriage. When she arrived there she was shown to a private room, and, acting under the direction of the defendants, she there prepared herself for the operating table. She went from there to the operating-room where the anesthetic was administered by the junior physician and in the presence of the senior physician and several persons connected with the hospital. It was very clear that the plaintiff could not be left in the operating-room during the period necessary for her

recovery, and it was the duty of some one to see that she was safely removed therefrom and placed in a room suitable for such further treatment as her case might require.

While it was shown that neither of the defendants owned or controlled the hospital, it did appear that they made all arrangements for the plaintiff's stay there, and a jury would be justified in finding that the defendants as part of their employment undertook to care for the plaintiff from the time she entered the hospital until she was ready for discharge therefrom. And while this might not ordinarily include the work of the hospital employés, the physicians might assume the duty of returning the patient to her room, and in such event each member of the firm would be the agent of the other in carrying on the work. It is fundamental that each partner is the agent of the firm while engaged in the prosecution of the partnership business, and that the firm is liable for the torts (wrongful acts) of each, if committed within the scope of the agency.

The trial court gave an instruction which embodied correct law on this subject and it was for the jury to say whether the junior physician was acting for the firm when the accident occurred. It surely should not be said as matter of law in all cases that after a serious surgical operation and while the patient is still unconscious, the physician may leave the patient on the operating table to find his way to his own room the best he may. Furthermore, the evidence showed that in this hospital the physicians accompanied their patients up and down the elevator.

Justice Weaver says, in a dissenting opinion: I am not able to concur in the foregoing opinion. The net result of the holding there expressed is to greatly increase and enlarge the liability, already sufficiently burdensome, of the medical profession. It may be admitted that the defendants advised plaintiff to go to the hospital, and in her behalf arranged with the hospital managers for her reception, but I am unaware of any rule of law by which such acts on their part rendered them chargeable with the negligence of the hospital managers or their servants. There is no pretense that defendants had any connection with or control over the hospital or the attendants there employed except as practicing physicians who went there to treat their patients.

Again, he says, referring to the junior physician: To charge him with this unfortunate result—and to go still further and charge the partnership of which he was a member—strikes me as a grievous injustice not called for by any rule or principle of law. Suppose, in wheeling the car along the hall, the nurse had carelessly tipped it over, precipitating the plaintiff on the floor, or had carelessly fallen on or against the plaintiff, or had of her own motion administered a medicine or restorative in excessive or dangerous quantity, is there any principle on which defendants could be held liable for injuries thus occasioned? I think it safe to say that this question will be unhesitatingly answered in the negative, and yet it will be very difficult indeed to suggest any tenable ground for distinguishing between the relations and liabilities of the parties in these supposed cases and the case at bar.

I freely concede that one who adopts a profession which has to do with matters affecting the health and lives of those whom he serves is properly held to a high degree of responsibility, and is required to exercise care reasonably proportioned to the delicacy and importance of the duties he undertakes to perform. While there are doubtless occasional exceptions, it is a matter of common observation that the medical profession of to-day is keenly alive to its responsibility. No profession excels it in thoroughness of preparation.

The true physician never ceases to be a student, never flags in zeal for more thorough mastery of the mysterious laws of human life and human health. In entering the practice he assumes grave risks. Both law and public sentiment demand of him a skill which adequately reflects the accumulated experience of the profession since the day of Hippocrates, and the breadth of scientific knowledge which is characteristic of the present age.

Though he does all a man can do and gives to a case the best fruits of a life of earnest study and investigation, he can not escape carping criticism, and the sick or injured person who is disappointed by his physician's inability to perform a miracle is easily persuaded to find solace in a malpractice suit, in which a sympathetic jury stimulated by the sight of a wasted or crippled human form, is led to put a brand of undeserved reproach on one who merits the entire confidence and respect of the community.

Every physician who answers an emergency call, even though it be one of the numerous "charity cases" which daily demand much of his time and attention, takes his professional life and reputation in his hand, and when having vainly exhausted all the resources at his command some person inspired by ignorance, or malice, or hope of blackmail, holds him up with a damage claim, he ordinarily finds it to his advantage to submit to unjust exaction rather than risk the uncertain outcome of such controversies in a court of justice.

This court, while not relaxing the rule which insists that men holding themselves out as physicians shall exercise the care and skill befitting the profession, ought not to unduly increase the burdens of that profession or make its practice so onerous and hazardous as to drive therefrom its reputable members; yet I feel warranted in saying that such result can not be avoided if the legal liability of the physician is to be extended materially beyond the limits which have been recognized and established in our earlier adjudications on this subject.

Justice Weaver dissents also from the conclusion that, if the junior physician was chargeable with negligence, his partner was equally liable with him. He says that even if we assume that the former was wheeling the car at the time of the accident, though it is conceded he was not, he was engaged not in the business of the partnership, but was voluntarily doing or assisting in the work of a hospital attendant. His partner was not present, took no part in the service being performed at that time, and should be exonerated from all the liability. The judgment appealed from should be reversed.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal.

July 9.

1 *The Sanctity of Medicine. T. F. Harrington, Boston.
2 Obliterating Endarteritis: Types and Their Surgical Importance. C. F. Painter, Boston.
3 *Obscure Fever in Infancy and Early Childhood. J. L. Morse, Boston.
4 An Instrument for Separating the Jaws. W. Rollins, Boston.
5 Acetonuria. A. G. Rice, Springfield, Mass.

1. **Sanctity of Medicine.**—After a historical retrospect of the relations of medicine and religion from the earliest times, Harrington discusses the limitations of laboratory methods, the psychic element in healing, the rehabilitation of the family physician of the old school, "not as a general practitioner, but as the adviser and guide to the individual and to the family in all problems of health, and in the choice of a specialist, as well as to groups of individuals in their duty toward the state." He must take the leadership in questions of public health and morals. The popularization of medical knowledge is essential. "Medical things and the medical view and relation of affairs are as much the property of the public and subject to its review as [those] in any other department of life."

3. **Obscure Fever in Infancy.**—Morse refers, not to elevations of temperature which are obscure merely because a careful physical examination has not been made, but to certain forms having inherent difficulties, by the occasional absence of distinguishing symptoms, etc. He enumerates and discusses pneumonia, endocarditis, typhoid and malaria, eczema, fever in the new-born, dentition, toxic absorption from tonsils and adenoids, otitis media, cervical adenitis, bronchial adenitis, pyelitis, anemia, rickets, syphilis, tuberculosis and intestinal toxemia.

New York Medical Journal.

July 11.

6 Course in Obstetrics in the University of Pennsylvania. B. C. Hirst, Philadelphia.
7 A Plea for More Sanatoria for the Consumptive Poor in all Stages of the Disease. S. A. Knopf, New York.
8 *Significance of Blood Analysis in Appendicitis. C. C. Sichel, New York.
9 *Management of Chronic Endocarditis During the Stage of Compensation. S. A. Stein, New York.
10 Treatment of Delirium Tremens. W. T. Dannreuther, New York.
11 Biochemical and Anatomic Changes Induced in Dogs by Potassium Cyanid. W. H. Welker and N. E. Ditman, New York.
12 Paroxysmal Hemoglobinuria. E. G. Ballenger, Atlanta, Ga.
13 Treatment of Erysipelas. D. B. Allen, New York.

8. **Blood Analysis in Appendicitis.**—Sichel considers that the solution of the question of when to operate in appendicitis depends on the careful study of the blood. From a study of over 50 cases he decides that, imperfect as is the study of the blood, when an infection is present and absorption starts in appendicitis blood change will inevitably occur. The blood picture is similar to those seen in infections elsewhere, though the counts are not always so high. Leucocytosis varies from 12,000 to 25,000 or 30,000. Polynuclear counts show from 80 per cent. to above 90 per cent., usually in the neighborhood of 83 per cent. With the first leucocytosis and increase of the distinctive polynuclear percentage, he says, we should operate at once. When there is no increase in the counts he advises watching the blood picture in repeated examinations and being guided by the findings plus the patient's general symptoms.

9. **Chronic Endocarditis.**—Stein discusses the management of chronic endocarditis with compensation. Alcohol, tobacco, tea and coffee should be limited or interdicted. Obesity may require reduction, which can be safely accomplished only with the greatest care in diet, exercise, and drug treatment. Complicating diseases, e. g., derangements of the digestive organs, the lungs, the kidneys, and all emunctories, must be looked after; avoidance of shock to the nervous system is important. Rest in the recumbent position and sleep are essential. He discusses the variety of causes of sleeplessness and dilates on the value of hydrotherapy. Of drugs, codein alone or in combination with one of the urea group of hypnotics is most generally useful; the bromids, if used, must be used with caution; chloral is well borne when compensation is good. The two great factors requiring attention are the heart itself, its special lesion and muscular condition, and the condition of the arteries. He discusses them both in detail and concludes with a consideration of the advantages conferred by modern instruments of precision.

Medical Record, New York.

July 11.

14 *Conquest of the Venereal Diseases. H. Ellis, London, Eng.
15 Significance of Wash Water Examinations for Gastric Cells in Diagnosis of Atrophic Gastritis. A. Bassler, New York.
16 *Nerve Anastomosis in Infantile Paralysis. K. Osterhaus, Norfolk, Va.
17 Insanity: Its Genesis and Transmissibility. S. W. Smith, New York.
18 Lactic Acid Bacilli Cultures in Nose, Throat and Ear Work. H. H. Curtis, New York.
19 *Cases, Other than Obstetrical, in which Hypodermatic Injections of Ergot Have Been of Great Service. E. P. Robinson, New York.

14. **Venereal Diseases.**—Ellis considers the arguments of those who hold it unnecessary to show any sort of recognition of venereal diseases, and immoral to do anything that might seem to involve indulgence to those who suffer from such diseases. He says: The man who is run over in crossing the street, the family poisoned by unwholesome food, the mother who catches the disease of the child she is nursing, all these suffer as the involuntary results of the voluntary act of gratifying some fundamental human instinct—the instinct of activity, the instinct of nutrition, the instinct of affection. The instinct of sex is as fundamental as any of these, and the involuntary evils which may follow the voluntary act of gratifying it stand on exactly the same level. This is the essential and fundamental fact: a human being in following the human instincts implanted within him has stumbled and fallen. The majority of those who contract venereal diseases by illegitimate sexual intercourse are young. They are youths, ignorant of life, scarcely yet escaped from home, or they are young girls, who have indeed ceased to be absolutely chaste, but have not yet lost all their innocence, and who do not consider themselves, and are not by others considered, prostitutes; that, indeed, is one of the rocks on which the system of police regulation of prostitution comes to grief, for the police can not catch the prostitute at a sufficiently early age. The general acceptance of the fact that syphilis and gonorrhea are diseases, and not necessarily crimes or sins, is the condition for any practical attempt to deal with this question from the sanitary point of view, which is now taking the place of the antiquated and ineffective police point of view. The Scandinavian countries of Europe have been the pioneers in practical modern hygienic methods of dealing with venereal diseases. The fearless and energetic temper of the people impels them to deal practically with sexual difficulties, while their strong instincts of independence render them averse to the bureaucratic police methods which have flourished in Germany and France. They have more or less completely organized the system of putting venereal diseases under the common law and dealing with them as with other contagious diseases. The first step in dealing with a contagious disease is to apply to it the recognized principles of notification. If we dispense with the paternal method of police regulation, if we rely on the general principles of medical hygiene, and for the rest allow the responsibility for his own good or bad actions to rest on the individual himself, there is a further step, already fully recognized in principle, which we can not neglect to take: We must look on every person as accountable for the venereal disease he transmits. So long as we refuse to recognize venereal diseases as on the same level as other infectious diseases, and so long as we offer no full and fair facilities for their treatment, it is unjust to bring the individual to account for spreading them. It may be necessary to point out that every movement in this direction must be the spontaneous action of individuals directing their own lives according to the rules of an enlightened conscience, and can not be initiated by the dictation of the community as a whole enforcing its command by law. In these matters law can come in only at the end, not at the beginning.

16. **Nerve Anastomosis and Infantile Paralysis.**—Osterhaus expresses his firm conviction that to nerve anastomosis we must look for the most beneficial results in many cases of infantile paralysis—results which can never be obtained from the other operative measures now in use, and which will be the means of converting into useful citizens many little sufferers who otherwise would be doomed to lifelong dependence on crutches or braces, burdens to themselves and to the community.

19. **Ergot.**—Robinson refers to the writings of A. T. Livingston in reference to the use of ergot in other than obstetrical conditions, and says that during the past 7 years he has used ergot hypodermically with gratifying results in over 300 cases of acne rosacea. He used the deep gluteal injections, and reports three cases selected from many of various kinds illustrative of its uses. They represent respectively acne rosacea, varicose veins in an obese aged woman, and extreme nervousness with defective venous circulation associated with excessive cigarette smoking.

Lancet Clinic, Cincinnati.

July 4.

20 Interstitial Nephritis. D. O. Hancock, Henderson, Ky.
21 *A Paranoiac. J. R. Smith, Cincinnati.
22 The Tuberculin Ocular and Cutaneous Reactions. H. Aufmwasser, Covington, Ky.
23 Vaccine or Tuberculous Therapy in the Treatment of Tuberculosis. H. B. Weaver Asheville, N. C.
24 Direct Laryngoscopy, Tracheobronchoscopy; Esophagoscopy, Gastroscopy. R. H. Johnston, Baltimore, Md.
25 Requirements for Entry to the Medical Colleges of Minnesota. E. J. Wilson, Columbus, Ohio.

21. **A Paranoiac.**—Smith reports a case, an interesting feature of which is a facsimile reproduction of a diagrammatic sketch of himself by the patient, showing what he considered to be his condition.

Archives of Internal Medicine, Chicago.

June.

26 *Use and Value of Tuberculin in Diagnosis of Pulmonary Tuberculosis. L. Hamman, Baltimore.
27 *Experimental and Critical Study of the Etiology of Chronic Nephritis. H. Emerson, New York.

28 *Prevention of Tropical Abscess of the Liver by Early Diagnosis and Treatment of Presuppurative Stage of Amebic Hepatitis. L. Rogers, Calcutta, India.
29 *Snake Poisoning in the United States. P. Willson, Washington, D. C.

26. **Value of Tuberculin in Pulmonary Tuberculosis.**—Hamman discusses the tuberculin reaction theoretically, the significance of tuberculin hypersensitiveness, the clinical features of the tuberculin reaction, the criteria of a reaction to tuberculin, the dangers of a tuberculin reaction, the clinical interpretation of tuberculin hypersensitiveness and the clinical method of demonstrating it, and the cutaneous and the conjunctival tests. He summarizes his considerations practically as follows: While tuberculin is a valuable aid in the diagnosis of pulmonary tuberculosis it must be used with care and the results interpreted with caution. The reaction is probably a specific one, but it must be borne in mind that a very insignificant lesion may produce tuberculin hypersensitiveness and the prevalence of such lesions should be fully realized. A negative reaction is considered decisive information, as is also a focal reaction. In the absence of a focal reaction, tuberculin hypersensitiveness must be viewed as one phase of the clinical picture, and judgment must not be too much warped by its presence. As a clinical procedure, no routine scheme can be advised, as the method must be altered to meet conditions as they arise. For adults some such scale as 0.2, 0.5, 1 and 5 mg. may be suggested; for young children 0.1, 0.2, 0.5 and 1 mg. The cutaneous reaction is too delicate an indicator to be of any value in diagnosis unless the reaction be negative, which it seldom is in adults. The eye reaction gives results more nearly in accord with clinical experience, but by no means of absolute certainty. Hamman does not feel that it can supplant the subcutaneous method. For some time the two should be used together, but not simultaneously. Eye inoculations should precede the subcutaneous by a few days.

27. Chronic **Nephritis.**—Emerson records a series of careful experiments on fourteen dogs, extending over 26 months, undertaken to establish the effects on the kidney of repeated general vasomotor dilatation, of mechanical injury of its substance, and of various drugs injected directly thereinto, and of the effect on the kidney of increased viscosity of the blood due to the addition of gelatin to the blood stream, and of solutions of adrenalin chlorid and of lead acetate. The following are the conclusions drawn: From experimental results it would appear that interference with the blood supply of the kidney can be accomplished by means of chemical injury to the renal parenchyma, and that the process of repair which ensues may involve such a destruction of secreting tissue as to cause the death of the animal. From the experimental use of general vasodilators, it appears that the kidney suffers at least mild grades of degeneration, which may be due, not to the specific renal irritation of the drugs employed, but to the defective blood supply which frequently repeated vascular relaxation causes. From an analysis of the accepted causes of chronic nephritis in man it is evident that many of them have as a common factor a more or less severe and prolonged stagnation in renal blood supply, and, although this factor is often accompanied by the presence of irritants which we recognize as injurious to the kidney tissue, insufficient blood supply alone will cause, first, an error in the function, and later, an alteration in the structure of the kidney. As convincing proof of the true cause or causes of chronic nephritis in man is not present, we must perforce accept as a theory one which will account for most of the known facts. Loeb's explanation of the probable sequence of the circulatory events coincident with the course of chronic nephritis in man might reasonably be supplemented by an explanation of the etiology of nephritis which recognizes as a frequent, if not an invariable factor, deficient renal circulation. Faulty function always results from deficiencies of blood supply, and if the defects persist or are frequently repeated faulty structure results. In the case of the kidney, the fault in its function resulting from the altered structure in chronic nephritis will cause much or little disturbance in the body at large, according to the degree of circulatory compensation which can be maintained. Cardiac disease, bacterial toxins, and metabolic waste products are probably the causes of the errors in circulation which cause, first, faulty function in the kidney, and, finally, chronic nephritis. If this theory of etiology is supported by subsequent study, its application to the prevention of nephritis might strengthen existing efforts to check the spread of infectious disease, and to urge moderation in the habits of overstimulation and overwork, which are prominent in present-day life in large centers of population.

28. **Tropical Liver Abscess.**—Rogers' experience leads him to believe that 90 per cent of amebic abscesses of the liver can be prevented by the use of large doses of ipecac. The drug must be given in freshly made pills or bolus, no food or drink being given for several hours before and after the dose, which is best given once a day in the evening. Vomiting must not be produced, particularly if abscess has already formed. To prevent it, tincture of opium or chloral hydrate may be given about twenty minutes before the ipecac; or the ipecac may be put up in keratinized capsules, which do not dissolve before reaching the intestine (Rogers); or the pills may be coated with melted salol (Grubbs). The daily dose is from 30 to 60 grains of ipecac, continued for at least two weeks, but at increasing intervals.

29. This article was discussed editorially in THE JOURNAL, July 11, 1908, p. 132.

American Medicine, New York.

May.

30 Syphilis. W. P. McIntosh, U. S. Public Health and Marine-Hospital Service.
31 *Orthotic Albuminuria; Its Relation to Tuberculosis. F. T. B. Fest, Las Vegas, N. M.
32 Tonsillitis. R. O. Semmes, Camden, Ala.
33 Errors of Refraction and Balance of the Eyes and Their Bearing on General Health. J. R. Shannon, New York.
34 Complications and Sequels of Measles. H. R. M. Landis, Philadelphia.
35 Case of Traumatic Rupture of Descemet's Membrane, and Defects of That Membrane. E. B. Coburn, New York.
36 Nasal Obstructions. J. G. Parsons, Sioux Falls, S. D.

June.

37 Clinical Types of Eclampsia (Toxemia) as Viewed by the Specialist for the Benefit of the General Practitioner. E. H. Grandin, New York.
38 Treatment of the Puerperal Eclamptic Attack. R. Cronson, New York.
39 The Action of Remedies Usually Employed in Puerperal Eclampsia. T. F. Reilly, New York.
40 Syphilis. (Concluded.) W. P. McIntosh, Portland, Me.
41 The Spirit of 1908 in Medical Affairs. H. E. Lewis, New York.
42 A Medical Need. F. C. Clark, Providence, R. I.
43 *Gastric Secretion in Old Age. J. Friedenwald, Baltimore.

31. **Orthotic Albuminuria.**—Fest concludes that in regard to orthotic albuminuria we are unable to give any chemical test an exclusive significance, as our chemical means so far are too limited. Orthotic albuminuria is of apparently obscure hematogenetic or functional origin of various natures, so that every case has to be considered individually and treated accordingly. Orthotic proteinuria merits attention only as a manifestation, not as a disease.

43. **Gastric Secretion in Old Age.**—Friedenwald reports observations on the gastric secretion in 27 persons over 51, and in no instance did any case present symptoms indicating the presence of any gastric disorder. He concludes that from these observations, as well as from those of Leifschütz and others, it is evident that the gastric secretion has a tendency to diminish in old age, and in a degree proportionate to the arteriosclerosis, and it is therefore unwise to attach too much importance to the absence of this secretion in individuals advanced in years, in the diagnosis of cancer of the stomach.

Journal of Inebriety, Boston.

June.

44 Relation of Alcohol to Physical Deterioration and National Efficiency. W. M. Eccles, London, Eng.
45 Psychic Treatment of Inebriates. T. D. Crothers, Hartford, Conn.
46 Coffee and Tea Poisoning. A. Gouget, Paris, France.
47 Disease and Mortality from Alcohol. D. H. Kress, Washington, D. C.
48 Gelseminin in the Morphin Habit. W. F. Waugh, Chicago.
49 Alcoholic Insanity. M. F. Toner, Hanford, Cal.
50 *Certain Aspects of the Tobacco Question. M. Woods, Philadelphia.
51 Mental Defects Following the Use of Alcohol. J. T. Fisher, Los Angeles.

50. **Tobacco.**—Woods singles out the tobacco question from other habits, inasmuch as this drug, he says, had no beneficial use in any medical sense, making it necessary or proper for us to recommend it. He denies that it aids digestion, that it

prevents lean people from getting stout or vice versa, that it possesses any power to preserve the teeth from decay, or to neutralize the poison of contagion. It is not a disinfectant or a remedy for any pathologic condition. While the Dispensatory credits it, when moderately taken, with quieting restlessness, mental and corporeal, he holds that to treat such mere symptoms with a narcotic is merely to deaden the result of a disease while leaving the cause untouched. On the other hand, he lays stress on its evil influences and particularly calls attention to the practice among tobacconists of enclosing suggestive and salacious pictures in tobacco packages. He suggests that the soporific calm and the obscene picture are hand and glove in the production of sexual immorality.

Journal of the Indiana State Medical Association, Fort Wayne.

May.

52 History, Causes and Prevention of Tuberculosis. M. Ravdin, Evansville.
53 General Management of Tuberculosis. J. Y. Welborn, Evansville.
54 Medical Treatment of Cystitis in the Female. E. R. Beard, Liberty.
55 Suppuration of the Accessory Nasal Sinuses. J. F. Barnhill, Indianapolis.

June.

56 *Practical Application of Opsonic Therapy. J. V. Reed, and H. S. Thurston, Indianapolis.
57 Value of the Microscope and Test Tube in Diagnosis. B. W. Rhamy, Fort Wayne.
58 *Ocular Tuberculin Reaction. G. F. Keiper, Lafayette.

56. **Opsonic Therapy.**—Reed and Thurston describe briefly the principles of opsonic treatment and its method of administration in acne, boils and furuncles, acute infections following wounds, old sinuses, gonorrheal, streptococcus and tuberculous infections, and infections of the mucous membranes and their glands. They discuss the respective merits of stock and autogenous vaccines and urge the importance of using the latter whenever practicable. They describe in detail, with illustrations, the technic of estimating the opsonic index. They regard the determination of the index for most bacterial infections as generally unnecessary, except for tuberculosis, in which disease it should be frequently taken, especially during the first few weeks.

58. **Ocular Tuberculin Reaction.**—Keiper summarizes the literature on this subject and concludes that the value of the ocular tuberculin reaction as a diagnostic test for tuberculosis can not be ignored.

American Journal of Physiology, Boston.

June.

59 *Diastase in Cat's Saliva. A. J. Carlson and J. G. Ryan, Chicago.
60 *Influence of Salts and Non-Electrolytes on the Heart. S. R. Benedict, New Haven, Conn.
61 Excretion of Bromids by the Kidney. W. Hale and C. Fishman, Ann Arbor, Mich.
62 *Effect of Potassium Iodid on the Activity of Ptyalin. C. H. Neilson, and O. P. Terry, St. Louis.
63 *Behavior of Muscle After Compression. L. J. Henderson, G. A. Leland, Jr., and J. H. Means, Boston.
64 *The Resuscitation of the Glands and Muscles After Temporary Anemia. F. H. Pike, C. C. Guthrie, and G. N. Stewart, Chicago.
65 *The Variable Factors Involved in Faradic Stimulation. E. G. Martin, Boston.
66 Relation of Ions to Fibrillar Contractility. R. S. Lillie, Philadelphia.
67 *Excess of Chlorids in Lymph. A. J. Carlson, J. R. Greer and A. B. Luckhardt, Chicago.
68 *The Lymphagogue Action of Lymph. A. J. Carlson, J. R. Greer, and F. C. Becht, Chicago.
69* The Calibration of the Inductorium for Break Shocks in Faradic Stimulation. E. G. Martin, Boston.
70 *The Refractory Period and the Period of Varying Irritability in Heart Muscles. W. H. Schultz, Baltimore.
71 *Influence of Cold and Mechanical Exercise on the Sugar Excretion in Phlorrhizin Glycosuria. G. Lusk, New York.
72 Production of Sugar from Glutamic Acid Ingested in Phlorrhizin Glycosuria. Id.
73 *Temperature Coefficient of the Velocity of Nerve Condition. C. D. Snyder, Baltimore.
74 Galvanotropism in Bacteria. J. F. Abbott and A. C. Life, St. Louis.

59. **Diastase in Cat's Saliva.**—Carlson and Ryan found the saliva of the cat to contain a diastase, the action of which is much feebler than that of human saliva. The submaxillary saliva is stronger than that of the parotid gland and the diastasic action is greater in saliva secreted under excitation of the sympathetic than under that of the chorda tympani. The diastasic content of the saliva is much less than that of the blood serum of the cat, but it is increased by the intravenous injection of human saliva or of pancreatin, but not by the injection of malt diastase. From these observations authors conclude that the diastase of the cat's saliva is not a specific secretion of the salivary glands, but is derived by transudation from the blood. A similar condition exists in the dog, although the dog's saliva frequently does not contain diastase at all.

60. **Heart Action.**—Benedict sustains the proposition that the rhythmic action of the heart depends on a certain degree of tonus, and the reason why a latent period is observed when a strip of turtle's heart is placed in solution of sodium chlorid is that time is required by the strip to reach the requisite degree of tonus. It is not caused by lack of calcium ions or of available oxygen, neither is it due to asphyxiation. The balance of experimental evidence is at present strongly against the acceptance of Langendorf's hypothesis, that the products of the heart tissue's own metabolic activity constitute the stimuli to rhythmic contractions. The facts also are against the assumption that oxygen and calcium compounds act by favoring oxidation. Under certain conditions non-electrolytes may induce a series of beats in ventricular tissue. The anion probably plays an active rôle in the action of salt solutions on heart tissue.

62. **Action of Potassium Iodid on Ptyalin.**—Neilson and Terry have found that potassium iodid both in the test tube and when given internally markedly increases the diastasic activity of the saliva.

63. **Compression of Muscle.**—Henderson, Leland and Means find that a pressure of 500 atmospheres is probably not in itself harmful to muscle tissue. The observed harmful effects of compression in other cases have been probably due either to too rapid compression and decompression, or, what amounts to the same thing, to irregularity in compression or in decompression.

64. **Resuscitation.**—The experiments of Pike, Guthrie and Stewart were conducted by producing prolonged anemia of the brain by clamping the cerebral vessels. The results seem to show that the secretion of saliva and of tears is in a measure independent of the nervous system, and may be revived on the introduction of artificial circulation, before the return of sensibility in the nervous system. It may also fail while the nervous system is still active. The flow of lymph does not seem to be dependent on the action of the nervous system. The muscles in all experiments in which they were subjected to the same conditions were found to be more easily resuscitated than the nervous tissues. The authors have seen no case of permanent paralysis following anemia which could be shown to be due to muscular and not to nervous causes. The excitability of the muscles to direct stimuli persists longer and returns earlier than that to indirect. The motor endings succumb more quickly than the muscles themselves. Spasms of the skeletal muscles originate in the central nervous system. They cease in the parts below the plane of section when the spinal cord is transected. Prolonged anemia of the mother accompanied by severe spasms resulted in the death of only one out of four fetuses. There was no evidence of the formation of any toxic substance during the convulsions that affected the fetus. There was no evidence of the occurrence of severe spasm of the fetus *in utero*.

65 and 69. **Quantitative Study of Faradic Stimulation.**—In his first paper Martin insists on the value to the physiologist of a means of measurement of faradic stimuli, and discusses the factors determining the strength of such shocks. He concludes as follows:

If the values of faradic stimuli are to be expressed by a system of units, each unit will have to comprise the following factors:

1. One which shall state the efficiency of the particular inductorium used in terms of a standard, and also the efficiency of the secondary in the position it occupies relative to the primary, this factor being different for make and break shocks.

2. One which shall give the intensity of the primary current, corrected for voltage when make shocks are used, and, if necessary for the magnetization of the iron core, when break shocks are to be measured.

3. One which shall state the effect of the contact key used in terms of a standard.

4. A reducing factor for bringing make and break shocks to common terms, made necessary by the fact that they are to be measured by different calibrations.

In the second paper Martin deals with the calibration of the inductorium for break shocks and summarizes his conclusions, but as the latter are chiefly of technical interest, they are here omitted.

67. **Physiology of Lymph.**—Carlson, Greer and Luckhardt find a considerable increase in the chlorids of the neck lymph of the dog over those of the serum, and this amount is more than sufficient to acount for the difference in osmotic concentration. The excess of chlorids in the lymph seems to these investigators to render the filtration and transudation theories of lymph formation untenable.

68. **Idem.**—Carlson, Greer and Becht show that the lymph is secreted in the salivary glands in opposition to the osmotic pressure, and they accept the conclusion that some other mechanism than that of osmosis must be depended on to explain the secretion of lymph. They call attention to what they say is now a demonstrated anatomic fact, that the lymphatic system is a closed system of vessels, and hence that the lymph found in these vessels is distinct from the lymph in the tissue spaces. The only factors coming into play in the production of lymphatic lymph are, therefore, the vessel walls of the lymph and blood capillaries. As the osmotic theory is insufficient, the authors suggest the action of a hormone to explain the production of lymph. They have produced some experimental evidence to show that such a hormone exists. Its mode of action is still uncertain.

70. **Heart Muscle.**—Schulz concludes his article as follows:

1. The absolute refractory period continues to bear a constant relation to the duration of systole, whether the agents used increase or decrease the irritability of muscle. In other words, if S equals the duration of systole and R the absolute refractory period, the ratio R/S is approximately constant.
2. It is suggested as a possible explanation of the absolute refractory period that on the initiation of a contraction all of the dissociable material is used up, and that the colloidal particles undergo a change in size and position, and that so long as these conditions obtain, it is impossible for the tissue to contract.
3. Experimental data suggest that the inorganic salts of sodium calcium and potassium play an important part in reforming the dissociable material, and it is probable that calcium in physiologic amount in some way acts as an accelerator.

71. **Phlorrhizin Glycosuria.**—Lusk believes that he has established the general validity of the ratio D:N = 3.65:1 in fasting and meat-fed dogs. He has shown that this ratio does not vary after the ingestion of fat and his present experiments indicate that cold and mechanical work, which greatly increase the combustion of fat, may under proper conditions be without influence on the D:N ratio. All these facts prove that while sugar is derived from protein it is not derived from the metabolism of fat. A large ingestion of fat may possibly lead to the formation of a small amount of dextrose from the rapidly absorbed glycerin component of fat, but this result has never been seen in his laboratory. Lusk criticises the work of Rubner and of Hartogh and Schumm, who obtained higher ratios than 3.65 to 1.

73. **Temperature Coefficient of Nerve Conduction.**—Snyder finds the temperature coefficient of nerve conduction to lie generally between 2 and 3, but in exceptional cases it is less than 2 or more than 3. These variations are not to be attributed to irregularities of the recording apparatus, but are unusual periods produced by some variation in the condition of the nerve itself. As they are not accounted for by the physical conditions, the author seeks a chemical explanation which he believes can be found in a difference in chemical time reaction of the conducting substances of the nerves. The observed constants admit of periodic arrangement in which the unusual or "freak" velocities take a normal and rational position. This periodic variation of velocity at constant temperature is explained by assuming that more than one complex of molecules exist in the nerve substance which, singly or in combination, by undergoing chemical change, brings about the phenomena of conduction. The several complexes differing from one another (possibly only slightly) in their chemical relations may thus also differ in their reaction times. This explains to some extent variations in the *tempo* of sensory and motor reflexes and even of "moods" and entire bodily activities. Theories based on the assumption that nerve conduction is a purely physical phenomenon are no longer tenable, because the temperature coefficients of the assumed physical phenomena are greatly less than for conduction of the nerve impulse itself. Any successful theory of nerve must take into account, or at least be in harmony with, the temperature factor.

Journal Missouri State Medical Association, St. Louis.

June.

75 Relations of the Medical Profession with the Public. W. S. Allee, Olean, Mo.
76 *The Everyday Fight on Consumption. G. Homan, St. Louis.

76. **The Fight Against Tuberculosis.**—Homan appeals to the evidence of what has been done in the way of disease extermination with typhus, scurvy, leprosy, smallpox, etc. He points out that, whereas a hundred years ago the fact that a person's face was not scarred with smallpox was used as a mark of personal identification and mentioned in official descriptions, the opposite is nowadays the case, the presence of pitting, not its absence, being the remarkable feature. He urges systematic instruction of the coming generations in school in regard to the intelligent prevention of tuberculosis. The coming generation being well instructed would demand in no uncertain tone from their legislative and official servants the voting of ample means to prevent the cruel, needless waste of human life now prevalent.

Detroit Medical Journal.

June.

77 The Medical Profession: Then, Now and Hereafter. H. Wilson, Detroit.
78 It Pays to be Healthy. W. A. Evans, Chicago.
79 *Early Diagnosis of Extrauterine Pregnancy. G. Van A. Brown, Detroit.

79. **Extrauterine Pregnancy.**—Brown emphasizes two points, to one of which he can find no reference in the literature, and to the other brief mention by only one writer. With reference to certain points of tenderness he believes that by a careful consideration of the following conditions one may be led to a certain diagnosis between appendicitis and extrauterine pregnancy: In appendicitis there is unilateral abdominal rigidity, with the extreme of tenderness over McBurney's point. If the trouble is anywhere in either broad ligament the extreme of tenderness is found over both the right and left lumbar ganglia, which are situated one inch and a half external to the umbilicus; the right one on a line from the anterior superior spine of the right ilium to the umbilicus, the left one on a line extending to the left anterior superior spinous process. As to the value of the blood count in excluding septic processes, he says that with pus present in either the tube, ovary, cul-de-sac, or appendix, there is a leucocytosis, which is not present in an unneglected extrauterine pregnancy. Other points which he considers erroneous are: 1. That temperature is necessarily subnormal in rupture of tube; it may be febrile. 2. It is not true that there is a fixed ratio in pulse and temperature. 3. Internal hemorrhage may be due to other causes, e. g., rupture of appendicular artery. 4. The presence or absence of uterine decidua can not be held of diagnostic importance, for chorionic villi may come from the tube and be found in the uterus, or uterine decidua may be cast off at the time of rupture, abortion, or on the death of the embryo, and thus be absent when sought for. He summarizes the salient points of diagnosis as follows: Disturbance of menstruation, short colicky pelvic pains, presence of a mass connected with adnexa, enlargement of uterus, no leucocytosis, and tenderness over both right and left lumbar ganglia.

Kentucky Medical Journal, Bowling Green.

May.

80 History of the State Board of Health. J. N. McCormack, Bowling Green.
81 Congenital Dislocation of the Hip. J. B. Richardson, Jr., Louisville.
82 Training, A Prophylaxis for Nervousness. E. D. Burnett, Louisville.
83 Etiology and Symptomatology of Abortion and Miscarriage. O. W. Doyle, Louisville.
84 Prophylaxis and Medical Treatment of Abortion and Miscarriage. W. B. Doherty, Louisville.
85 Surgical Treatment of Abortion and Miscarriage. H. A. Davidson, Louisville.
86 Experiences with Certified Milk in Cincinnati. O. P. Geier, Cincinnati.
87 Clean Milk in its Economic and Medical Relations with Special Reference to "Certified Milk." H. L. Colt, Newark, N. J.
88 Treatment of Fracture of the Spine. J. T. Dunn, Louisville.

June.

89 *Complications, Prophylaxis, Prognosis and Treatment of Typhoid. J. C. McCreary, Cave City.
90 *My Experience with Typhoid and Complications. D. H. Erkiletian, Hopkinsville.
91 Typhoid Fever. W. F. Hickie, Hubble.
92 Necessary Facts for a Complete Insurance Examination. B. J. O'Connor, Louisville.
93 Chlorosis, Secondary and Pernicious Anemia. V. Blythe, Paducah.
94 *Lacerations of the Vaginal Outlet. F. H. Beard, Shelbyville.
95 Drainage of the Gall Bladder. G. B. O'Roark, Grayson.
96 Adenoids. H. C. Beasley, Hopkinsville.
97 Scarlet Fever. J. B. R. Cooper, Shively.
98 Cholecystectomy. A. H. Barkley, Lexington.
99 Inflammation of the Accessory Nasal Sinuses as a Sequel of Influenza. G. Purdy, New Liberty.
100 Action of Arsenic on the Human Economy from a Therapeutical Standpoint. J. F. Marrs, Boles.
101 Technic of New Perineorrhaphy (Waldo's). M. Casper, Louisville.
102 Mediastinal Tumors. W. H. Coleman, Louisville.
103 Acute Nephritis. H. D. Rodman, Bardstown.
104 *Pathology and Treatment of Diseased Tonsils and Adenoids. G. C. Hall, Louisville.
105 Relationship Between Physician and Pharmacist. A. Dimmitt, Louisville.
106 Counter Prescribing and Unethical Advertising. C. H. Harris, Louisville.
107 Some U. S. P. and N. F. Preparations. W. Votteler, Louisville.
108 Etiology of Glaucoma. G. C. Hall, Louisville.

89. **Typhoid.**—McCreary discusses typhoid exhaustively. He emphasizes the need of being prepared to catheterize if kidney trouble occurs, describes the various complications as he has found or has not found them, and pays particular attention to treatment. He relies largely on intestinal antiseptics for drug treatment and changes them frequently, using salol, zinc sulphocarbonate, and copper arsenite. He dislikes antipyretics. Stimulants must be given only with judgment in regard to the individual case. Hydrotherapy in the form of cold sponging is serviceable, but he finds that cold baths will not do in children, old people, and the nervous. He discusses the special symptoms in detail.

90. **Idem.**—Erkiletian uses from the time of diagnosis until convalescence sets in, the following: Turpentine, as an agent which possibly will prevent intestinal hemorrhage; iron, as an agent which promotes digestion and improves the blood; sulphocarbolate of zinc, as a reliable intestinal antiseptic. To these he adds calomel as a disinfectant, secretory stimulant, and in one grain doses a laxative. Aconite and veratrum viride he considers contraindicated. Camphor is an excellent stimulant.

94. Abstracted in THE JOURNAL, Nov. 2, 1907, p. 1550.

104. **Tonsils and Adenoids.**—Hall arrives at conclusions which may be summarized as follows: While normal tonsils atrophy at adult life, diseased tonsils do not. Therefore early operation is indicated. The hyperplasia affects the entire gland, so complete removal is necessary. In very few cases is the tonsillotome of use. A child should never be operated on forcibly while struggling and screaming; it leads to bad work and has a serious effect on the child's nervous system. Local anesthesia in older children, general anesthesia in younger ones, is preferable. Both tonsils and adenoids should be removed at one sitting.

St. Paul Medical Journal.

June.

109 *Relation of Antral Sinusitis to Hay Fever and Asthma. J. E. Schadle, St. Paul.
110 Chronic Ulcer of the Stomach and Duodenum. W. J. Mayo, Rochester, Minn.
111 *Treatment of Gastric Ulcer. C. L. Greene, St. Paul.

109. The chief points in this paper were discussed in a similar paper by the same author which appeared in the *Medical Record*, May 25, 1907, an abstract of which was published in THE JOURNAL, June 8, 1907, page 1986.

111. **Gastric Ulcer.**—Greene considers medical and surgical statistics misleading, and that much unnecessary operative work has been done without scientific diagnosis or therapeutics. He adds the following conclusions: Simple ulcer is always medical. Chronic ulcer is only surgical when persistently recurrent. Cases of moderate stasis and pylorospasm are not primarily surgical. Hemorrhagic cases are seldom fatal and yield a lower mortality under medical than under surgical treatment. Surgical relief is advisable in painful perigastric adhesions which are resistant to medical measures. Perforation is a purely surgical condition. Proper medical treatment and after-control reduce recurrence to a minimum. The absence of this control in public clinics permits and justifies a freer recourse to surgery than would be permissible in private practice. In properly controlled private cases there is but a negligible mortality. The rigid plans of treatment and time divisions are an absurdity, and the practitioner should be governed by a knowledge of the fundamental principles involved, the clinical course, known conditions as to gastric secretion, and yet more as to motility, and the individuality of the patient. Absolute rest, mental and physical, the wise employment of alkalies, proper nourishment, demanding little of motility and secretion, exciting a potent digestive fluid rather than a profuse one, easily assimilable and nutritious food and psychotherapeutic control comprise all measures usually found necessary. Hospital care and the services of a trained nurse are of great importance. Patients should be kept under direct observation and control for at least one year after apparent cure. Results should be reported after five years. Cure is not complete until all local tenderness, rigidity and pain are relieved, blood is absent from the stools and the previous best weight of the patient regained. The requirements on the part of the surgeon should be quite as definite, and in both the claim to cure should be tested by a long immunity period.

Louisville Monthly Journal of Medicine and Surgery.

June.

112 Breast and Artificial Feeding of Infants. H. E. Tuley, Louisville.
113 *Non-Valvular Heart Affections. J. G. Cecil, Louisville.
114 The Calmette Ocular Reaction for Tuberculosis. W. Cheatham, Louisville.
115 Proteid Digestion and Alkaloids. J. Burke, Manitowoc, Wis.

113. **Heart Affections.**—Cecil discusses non-valvular affections of the heart and says that much of the treatment usually resorted to in affections of the heart is misapplied, if not positively injurious and contraindicated. There is no doubt that the indiscriminate use of heart tonics and stimulants is positively hurtful. If there be edema, dyspnea and irregularity, digitalis, if used at all, must be most carefully watched and strychnin be given only in small doses, never exceeding 1/60 grain to the dose. Attention should be directed to avoidance of overstrain, overwork and excitement, both mental and physical, to relieving the heart of all extra work so far as possible, and, to favor this, overeating and drinking is prohibited. All the emunctories must be kept in action and rest and gentle exercise imposed.

Annals of Ophthalmology, St. Louis.

April.

116 Refraction. M. L. Foster, New York.
117 Principles on Which is Based My Operation for Cicatricial Ectropium of the Lower Lid. F. C. Hotz, Chicago.
118 Treatment of Sympathetic Iridocyclitis. Pathology of the Uvea or Tractus Uvealis. E. Borghetti, Wellington, New Zealand.
119 Sarcoma of the Right Orbit. H. Muetze, St. Louis.
120 Probable Congenital Circumscribed Defect in the Chorioid, with Anomalous Pigment and Vascular Arrangement. W. Reber, Philadelphia.
121 Restoration of Contracted Sockets. W. Zentmayer, Philadelphia.
122 General Pathology of the Pupil. L. Bach, Marburg.
123 Zonula Ciliaris and Its Relation to Neighboring Structures. M. Salzmann, Vienna.

Surgery, Gynecology and Obstetrics, Chicago.

June.

124 *Perforative Peritonitis. J. B. Murphy, Chicago.
125 *Operation for Repair of Sunken Nose. J. F. Binnie, Kansas City, Mo.
126 Anemic Spot on the Duodenum, which May Be Mistaken for Ulcer. W. J. Mayo, Rochester, Minn.
127 Substitution of Whole or Half Joints from Freshly Amputated Extremities by Free Plastic Operation. E. Lexer, Königsberg, Prussia.
128 *Surgery of the Gasserian Ganglon. S. H. Weeks, Portland, Me.
129 Unique Anomaly of the Great or Gastrocolic Omentum. W. M. Mastin, Mobile, Ala.
130 Diverticulum of the Appendix. G. B. Johnston, Richmond, Va.
131 Non-Parasitic Cysts of the Spleen. G. B. Johnston, Richmond, Va.
132 *Some Debts Which Medical Science Owes to Surgery. W. H. Carmalt, New Haven, Conn.
133 *Congenital Idiopathic Dilatation of the Colon. J. M. T. Finney, Baltimore, Md.
134 Technical Points in Cleft Palate Operation. H. M. Sherman, San Francisco, Cal.

135 *Further Evidence in Support of the Theory that Hodgkin's Disease is a Type of Sarcoma. W. B. Coley, New York.
136 *How Frequently Do Gastric Ulcers Become Carcinomata? W. L. Rodman, Philadelphia.
137 *Infantile Hypertrophic Stenosis of Pylorus. F. E. Bunts, Cleveland, Ohio.
138 *Use of Sterile Oil to Prevent Intraperitoneal Adhesions. J. B. Blake, Boston.
139 *Pelvic Abscess with Reference to Rectal Drainage. A. MacLaren, St. Paul, Minn.
140 *Diagnosis and Treatment of Kidney Stone. A. D. Bevan, Chicago, and J. F. Smith, Chicago.
141 *Stone Tuberculosis of the Kidney, and Perinephric Abscess. G. T. Vaughan, Washington, D. C.
142 *Acute Unilateral Hematogenous Infections of the Kidney. G. E. Brewer, New York.
143 *Results of Operation on the Kidney for Tuberculosis and Calculus. A. J. McCosh, New York.
144 Case of Plastic Repair in Old Gunshot Wound of Abdomen. J. K. Marden, Marsovan, Turkey.

124, 128, 132. Abstracted in THE JOURNAL, May 23, 1908, p. 1718.

125, 135, 138. Abstracted in THE JOURNAL, June 20, 1908, pp. 2104, 2105.

133, 139. Abstracted in THE JOURNAL, June 27, 1908, p. 2151.

136, 137, 140 to 143. Abstracted in THE JOURNAL, May 30, 1908, pp. 1823, 1824, 1825, 1826.

The Laryngoscope, St. Louis.

June.

145 A Consideration of the "Herd" Theory as an Etiologic Factor in Ozena. C. F. Theisen, Albany, N. Y.
146 Pathology of Atrophic Rhinitis with Ozena. D. B. Kyle, Philadelphia.
147 Treatment of Atrophic Rhinitis, Including Ozena. R. E. Myles, New York.
148 Treatment of Atrophic Rhinitis. G. L. Richards, Fall River, Mass.
149 Atrophic Rhinitis and Ozena. C. Rice, New York.
150 Advantages and Disadvantages of the Endonasal Method of Operation for Empyema of the Frontal Sinus. R. H. Skillern, Philadelphia.
151 Hemorrhage Following Quinsy. Ligation of the Common Carotid Artery; Recovery. Study of 51 Cases of Hemorrhage in Connection with Pharyngeal Suppuration. J. E. Newcomb, New York.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London.

June 27.

1 *Points in History of Antiseptic Surgery. Lord Lister.
2 *The Defensive Arrangements of the Body as Illustrated by Incidence of Disease in Children and Adults. W. W. Cheyne.
3 Surgical Treatment of Non-Malignant Affections of the Stomach. F. Eve.
4 Melitensis Septicæmia. J. W. H. Eyre.
5 *Nature and Causes of Taint in Miscured Hams (*Bacillus Fœdans*). E. Klein.
6 Early Treatment of Protruding Incisor. J. F. Colyer.
7 Treatment of Malocclusion (Orthodontia). H. C. Highton.
8 *Case of Migration of the Cecum Producing Obstruction of the Ascending Colon. J. Bland-Sutton.
9 Scurvy in South Africa, 1902-1904. D. M. Macrae.

1. **Antiseptic Surgery.**—Lister describes how, in 1865, he first put into practice the antiseptic principle in a case of compound fracture, by the application of undiluted carbolic acid on lint. The caustic action, however, formed a crust of dead tissue which, being preserved from external influences, was replaced by living tissue. This observation afterwards suggested the idea of the catgut ligature. He discusses the uses of carbolic acid.

2. **Defensive Arrangements of the Body.**—Cheyne considers only diseases due to the entrance of parasitic organisms, with special reference to the points of difference between children and adults. There are some diseases which practically occur only during childhood; and *vice versa*, there are certain diseases common in adult life which hardly ever affect children. Again there are many infective diseases which attack both adults and children, but the young are more especially susceptible to some, while their elders are more susceptible to others. Or, again, some diseases are more virulent in children than in adults, and *vice versa*. Perhaps the most striking fact of all, and the one to which he especially draws attention, is that in diseases which are common to both children and adults the organs and tissues which are attacked by the virus may differ markedly according to the age of the patient. As instances, he cites the exanthemata, which are often spoken of as children's ailments. The pneumococcus attacks the body more readily in childhood than in adult life, i. e., the resisting power is less in children. The first line of defense resides probably in the epithelial tissues. "It clearly must be a local power residing in the epithelial cells themselves, or in the fixed cells on which they are situated, rather than any general condition such as the presence of opsonins in the blood." Children are more susceptible than adults to the gonococcus, which, moreover, in children, attacks epithelial tissues which are more or less immune in adults. Multiple abscesses of the skin and impetigo are common in children, but boils rarely occur, while in adults the reverse is the case. The second defensive arrangement he holds to be the endothelium, where they fix on the weak spots, e. g., endarteritis is common in syphilis. The local predisposition may to a considerable degree be a matter of pabulum. Ringworm of the scalp is common between 3 and 15 years, rare before and after. He suggests a difference perhaps in the chemical composition of the hairs in adults and children. Thread worms, again, are common in children, but equally rare in adults. This may be due to a difference in the secretions of the alimentary tract. Bacteria of the same species may display a special appetite for certain tissues, as fresh developments in an individual are apt to occur in connection with similar tissues. That the anatomic arrangement of various parts favors the deposit of micro-organisms can hardly be accepted as the only, or even as an important factor. The localization of the disease he considers in the main a vital question to be summed up under the term local predisposition. He dilates on this question and closes by pointing out that he has been unable to find any marked differences in the opsonic index to different organisms at various periods of life corresponding to the variations in the incidence of disease and in their course at different ages; nor has any difference in the opsonic index to various infective organisms been pointed out as regards sex, and yet there are noticeable variations in the incidence and severity of these diseases in the two sexes. He refers to Wells' observations on the opsonic index in infants (*Practitioner*, May, 1908, abstracted in THE JOURNAL, July 4, p. 80) and says that if his conclusions are found to apply to a sufficiently large number of cases they raise the question whether or not the significance of the opsonic index and opsonins generally is being properly interpreted. He asks, "May there not be some other interpretation of the variations in the opsonic index than that which is put forward by Wright, and which is being so extensively translated into practice?"

5. **Bacillus Fœdans and Tainted Hams.**—Klein, having investigated the cause of the taint that occasionally affects hams during the curing process, reports the finding of a microbe, in length from 3 to 5 microns on the average, but varying between 1.6 microns and 14 microns, and 0.4 microns in thickness, straight or curved, ends more or less rounded, not motile, but forming linear chains and filaments. It is an obligatory anaerobe. He describes the mode of artificial culture and proposes for it the name *Bacillus fœdans*.

8. **Migration of Cecum.**—Bland-Sutton describes a case in which "a loop consisting of the last few inches of the ileum and the ascending colon with the cecum and appendix, had been twisted on its own axis through half a circle and displaced upward and to the left," occupying the left kidney pouch. It caused obstruction of the ascending colon. Operation resulted in death sixteen hours later. Bland-Sutton calls attention to this complication because descriptions of it are not to be found in text-books or even in monographs dealing with intestinal obstruction. Its importance is obvious from the fact that the majority of the patients in whom it has occurred have died. This is probably due to delay in seeking advice.

British Medical Journal, London.

June 27.

10 *Points in the History of Antiseptic Surgery. Lord Lister.
11 Cystic Tumor of Suprarenal Body Successfully Removed by Operation. A. H. G. Doran.
12 Two Cases of Lateral Sinus Thrombosis. E. Harrison.
13 *Etiology and Treatment of Eczema. L. Kesteven.

14 Diving and Caisson Disease. N. H. Mummery.
15 Compressed-Air Illness. C. G. Grant.
16 *The Mentally Defective in Prison. J. M. Rhodes.

10. See Abstract 1.

13. **Eczema.**—Kesteven says that while the theory that eczema is the direct result of specific dyscrasia, or "blood humors" has been dropped, the view that certain pathologic states are frequently the indirect factors in the causation of eczematous attacks may be accepted without cavil on the evidence of the multiform eczemata we meet with accompanying or following such states. The origin of such eczemata, however, is to be attributed to neurotic action. He applies that principle to the consideration of "gouty eczema," eczemas consequent on uterine disorders and in mental cases, especially imbecility, and even to cases in which a local irritation is the exciting cause. Eczema may thus be divided into two classes for purposes of treatment: (1) That from within, acting through the sympathetic chain of the functional system, may be denoted the ganglionic or idiopathic form; and (2) that arising from external or local irritation, the peripheral or traumatic. For treatment he speaks highly of the application of pure liquid carbolic acid. Tincture of iodin is also useful; or the following, which he describes as a "happy combination":

℞ Tincturæ Iodi ..... 1|
Solutionis acidi carbolici (10%) ..... 9|

This is applied on lint under oil silk. All these applications are painful for a short time, but the pain rapidly subsides, leaving a scab. Suprarenal extract is a good application prior to the carbolic acid, as it reduces turgescence and exudation. Greasy applications should be applied only in the dry desquamative stage.

16. **Mentally Defective Prisoners.**—Rhodes discusses the condition of the mentally defective criminal in British prisons and draws conclusions, some of which are here quoted as being of more than local interest. Prisoners should be classified so that those who (quoting Mercier) "have done wrong in the pursuit of gratifications for themselves by the intentional injury of others" shall be firmly dealt with, while the weak-minded, the ignorant, the misled, shall have the punishment "made to fit the crime," i. e., related to the actual degree of responsibility of the culprit. The present confinement of all prisoners alike is expensive; the dangerous criminals must be confined in prisons, but for less serious offenses the state farm would be more useful and remedial. An expert alienist should be attached to each prison, as in Belgium. The habitual drunkard laws, which now let many go uncontrolled until they are confirmed dipsomaniacs, should be remodelled on the lines of the Massachusetts laws.

Medical Press and Circular, London.

June 24.

17 *Sciatica. R. A. Fleming.
18 Gallstone Surgery. D. Kennedy.
19 Diagnosis and Treatment of Syphilitic Neurasthenia. G. Millain.
20 Treatment by Diet of Bronchial Asthma. A. C. F. Rabagliata.

17. **Sciatica.**—Fleming divides sciaticas into three groups or types: 1. Interstitial neuritis and perineuritis, due generally to wet and cold, rheumatism or gout; (2) neuralgia; (3) pressure on the sciatic nerve or roots of the sacral plexus, as in pregnancy, a loaded bowel, etc. He discusses these types as regards pathology, clinically, diagnostically, etc., and confines himself in respect of treatment to Type 1. He recommends large doses of sodium salicylate and sodium bicarbonate, with rest for the limb. Acupuncture is beneficial, using at least six sterilized needles, and leaving them in for half an hour. Injections are used, but 80 per cent. alcohol and from 1 to 2 per cent. osmic acid should never be used. Electrical treatment he has found disappointing. He mentions the breaking down of adhesions and nerve stretching.

Clinical Journal, London.

June 24.

21 Inter-Relations of Abdominal and Thoracic Diseases. W. H. Allchin.
22 Hematemesis; Its Varieties and Treatment. D. Duckworth.
23 Treatment of Early Gonorrhea in the Male. W. W. Powell.

Journal of Tropical Medicine and Hygiene, London.

June 15.

24 Spirochetosis of Cypriote Fowls. G. A. Williamson.
25 Rare Sclerostome of Man in Nyasaland. R. T. Leiper.
26 Seven-Day Fever of the Indian Ports. F. H. A. Clayton.

Australian Medical Gazette, Sidney.

May.

27 Leprosy. J. A. Thompson.
28 *Treatment of Asthma and Other Chest Troubles, with Reference to Outdoor Sleeping. E. S. Jackson.
29 *Treatment of Asthma. A. Stewart.
30 Value of the Ocular Reaction in Diagnosis of Tuberculosis. S. Gillies.
31 Treatment of Tuberculous Joint Disease by Open Cut and Exposure to Sunlight. H. Swift.
32 Management of Burns and Scalds. A. C. F. Halford.
33 Four Successful Interscapulothoracic Amputations. W. J. S. McKay.
34 Treatment of Increased Intracranial Tension. R. H. Martin.

28. **Asthma.**—Jackson insists on the importance of fresh air for asthmatics, and urges sleeping on the veranda, disregarding draughts. It is not enough to sleep with doors and windows open. In hot weather there is a greater tendency to perspire when sleeping indoors. He is convinced that oversweating is one of the causes of asthma, as well as of other chest diseases, and it is important to watch the amount of clothing that patients wear.

29. **Idem.**—Stewart uses calcium iodid in 4 grain (0.26) doses with 5 minims of liquor arsenicalis (B. P.) thrice daily. When wheezing disappears the iodid is discontinued and liquor arsenicalis hydrochloricus (B. P.) in 10 minim doses thrice daily after meals is given and continued for three months. When active symptoms have disappeared, respiratory exercises should be begun—any exercise that produces breathlessness. Dumb bells, clubs, etc., are useless to an asthmatic, but skipping develops the respiratory muscles, increases the pulmonary capacity, and flushes the lungs with blood. Stewart has treated asthma on these lines in over 60 cases, with 75 per cent. of permanent benefit.

32. **Burns and Scalds.**—Halford insists on the inadequacy of antiseptics, which, to a large extent, are not only useless, but a hindrance, in the prevention of suppuration after burns. He quotes Hektoen and Riesman to the effect that it is the dryness in dry gangrene that renders infection with saprophytic bacteria difficult or impossible. He draws an analogy between the separation of sloughs after burns and scalds and the separation of the navel string of infants. Dryness and promotion of evaporation are the cardinal principles, when attainable. On mucous surfaces, however, antiseptics may be used. The risk of septic poisoning from mucous cavities is not so dangerous as on the cutaneous surfaces, due probably to the free diapedesis, secretion and drainage following injury there. As a powder for application has been suggested one part of calamine (native zinc carbonate) to seven of Fuller's earth.

Annales de Gynécologie et d'Obstétrique, Paris.

June, XXXV, No. 6, pp. 321-384.

37 *Secondary Rigidity of External Os from Acute Puerperal Inflammation of Cervix. (Rigidité secondaire des bords de l'orifice utérin.) A. Couvelaire.
38 Eversion of Uterus. P. Delbet.
39 *Treatment of Cancer of Female Genital Organs. J. L. Faure.

37. **Rigidity of External Os from Acute Inflammation During Labor.**—Couvelaire reports two cases of acute inflammation of the cervix during labor, inducing tumefaction and induration, and preventing the os from dilating. Both patients were primiparæ of 24 and 26, respectively, and in each case a flap tore from the cervix during forceps delivery of a still-born child. There was evidently acute inflammation, hyperemia and much edema in the first case, but no edema in the second. In both, labor had been irregular and prolonged, with premature rupture of the membranes. Bacteriologic examination was negative.

39. **Cancer of the Female Genital Organs.**—Faure's article has been prepared to present at the International Surgical Congress at Brussels next September. He is an advocate of the abdominal route and reviews his experience as he has developed his technic. In 12 cases he operated by Wertheim's method and 9 of the patients operated on between 1902 and 1906 are in good health to date. Two have since died of recurrence, and one has been lost to sight. He discusses the

superior advantages of the abdominal route, especially when combined with the vaginal technic. The combined method allows dissection of the ureters much better than a laparotomy alone, while it prevents any hesitation in respect to the limits below of the parts to be removed. The vagino-abdominal operation is shorter than the abdominal operation alone, which is an important advantage for debilitated patients, especially if there are any complications.

Archives des Maladies du Cœur, etc., Paris.

June, I, No. 6, pp. 337-400.

40 Origin and Significance of the Protosystolic Wave of the Pulse in the Jugular Veins. L. Bard.
41 Mechanism of Propagation to the Apex of the Murmur in Mitral Incompetency. T. R. Bradshaw.
42 Pernicious Anemia and Kidney Lesions. M. Labbé and E. Joltrain.
43 Infantile Lymphoid Leukemia with Nucleated Corpuscles. B. Weill-Hallé and C. Aubertin.

Bulletin de l'Académie de Médecine, Paris.

June 16, LXXII, No. 24, pp. 675-713.

44 Gaseous Abscess in Displaced Liver. Couteaud and Le Dentu.
45 Hemimelia with Fusion of Fingers, etc. (Cas d'hémimélie avec syndactylie, synonychie et défaut de développement de plusieurs métacarpiens.) H. Hallopeau and François-Dainville.

Presse Médicale, Paris.

June 17, XVI, No. 49, pp. 385-392.

46 Frequency of Tuberculosis in Laundry Employés. (Métier et habitats des blanchisseurs dans leurs rapports avec la tuberculose.) L. Landouzy.
47 Official Disinfection in Rural Districts. J. Courmont.
48 Therapeutic Application of High-Frequency Currents. A. Zimmern.

June 20, No. 50, pp. 393-400.

49 Colloidal Silver in Infectious Diseases. (L'argent colloidal.) A. Netter.
50 Arrested Local Development from Burns in Childhood. (Atrophie numérique consécutive aux brulures de l'enfance.) A. Daniel.

Semaine Médicale, Paris.

June 17, XXVIII, No. 25, pp. 289-300.

51 Pelvic Abscesses Secondary to Peritonitis. (Abcès pelvi-péritonitiques.) F. Lejars.

Archiv für klinische Chirurgie, Berlin.

LXXXVI, No. 2, pp. 277-573.

52 *Treatment of Tetanus on Basis of Experimental and Clinical Studies, Especially the Attraction of Tetanus Toxin to Lipoid Substances. P. Bockenheimer.
53 *Megacolon. (Zur Hirschprung'schen Krankheit.) J. Petrivalsky.
54 *Treatment of Phosphorus Necrosis. D. Teleky.
55 *Experimental Transplantation of Suprarenal Tissue in Kidney. H. v. Haberer.
56 *Primary Cancer of Appendix. (Primärer Krebs des Wurmfortsatzes.) T. Voeckler.
57 *To Hasten Recovery After Laparotomy by Allowing Patients to Leave the Bed Early. (Abkürzung des Heilungsverlaufs Laparotomirter durch frühzeitiges Aufstehen.) H. Kümmell.
58 Further Modification of Technic for Intestinal Anastomosis with Actual Cautery. E. Capek.
59 *Postoperative Thrombosis-Embolism. A. Fraenkel.
60 Treatment of Pseudarthrosis Following Firearm Wounds. (Pseudarthrosen-Behandlung nach Schussverletzungen.) Hashimoto and So.

52. **Treatment of Tetanus Based on Attraction of Lipoid Substances for Tetanus Toxin.**—Bockenheimer calls attention to the valuable aid in prophylaxis of tetanus that can be obtained by taking advantage of the affinity between tetanus toxin and fats. It has been shown that snake venom can be bound with cholesterin and botulismus toxin with lipoid substances, and he experimented with all these and with magnesium chlorid and sulphate, cod liver oil, liquid paraffin, olive oil, salves, vaselin and a Peruvian balsam salve. He describes his extensive research with guinea-pigs infected under conditions approximating those in man, and then given local preventive treatment. The best results were obtained with Peruvian balsam and vaselin. The former applied to the infected wound prolonged the period of incubation to twice the length of that in the controls. The addition of 10 per cent. antitoxin seemed to enhance this effect. If the tetanus developed it ran a much milder course. The same results could be obtained with a daily preventive injection of 0.2 c.c. per half pound of weight—smaller amounts being ineffectual. This is equivalent to 40 c.c. of antitoxin a day for a person weighing 100 pounds. He reviews the experiences with tetanus at von Bergmann's clinic during the last 25 years—a total of 29 cases with a mortality of 86.2 per cent. Three of the 20 patients who were treated with antitoxin recovered, one after amputation of the injured arm followed by antitoxin injected by every route. In every case terminating in recovery the incubation period had been long. He is an advocate of amputation or extensive excision, in case of severe injury, at the outbreak of the tetanus. In case of local tetanus, developing in the first two weeks, amputation gives the best chances for recovery. In local treatment he prefers hydrogen dioxid as it checks the growth of the tetanus bacilli and also destroys putrefaction bacteria. This local cleansing should precede the application of the Peruvian balsam salve every day.

53. **Megacolon.**—Petrivalsky says that we must distinguish between congenital megacolon and the secondary dilatation of the large intestine from various causes, principally from unusual length of the sigmoid. The true congenital megacolon is the result of a histogenetic anomaly of the mesentery, especially of its vessels, and of the wall of the intestine.

54. **Treatment of Phosphorus Necrosis.**—Teleky has encountered 11 cases at Vienna and describes them in detail. Ten of the patients had been employed in match factories and the other had been taking phosphorus internally for four years on account of osteomalacia. The necrosis was in the lower jaw in nine cases, in the upper jaw in four, and in two cases both jaws were involved. The case histories show the great advantages of patient waiting until the sequester has been spontaneously thrown off. This required about 11 months, but the process then was at an end, while early resection was mutilating and, owing to the impossibility of distinguishing the actual limits of the process, the disease generally continued its ravages uninfluenced. Conservative expectant treatment includes incision and drainage, antiseptic lavage of the cavity, and excochleation of the fistulous passage with extraction of the entirely detached sequester. An attempt to introduce a prosthetic appliance at once proved unsuccessful in one case. Phosphorus necrosis of the lower jaw does not offer favorable conditions for such measures.

55. **Transplantation of the Suprarenals in the Kidneys.**—Haberer transplanted one of the suprarenals into the kidney in 86 animals, including 61 dogs and 6 cats. Good functional results were obtained in 50 per cent. of the cases in which the pedunculated suprarenal was inserted in a slit in the kidney. Both the medulla and cortex survived, and both seemed to be equally important for the functioning of the organ. When the suprarenals were not functioning a typical syndrome was observed terminating in the death of the animal.

56. **Primary Cancer of the Appendix.**—Voeckler reports two typical cases and reviews seventy-eight in the literature. At no other point in the body does cancer make its presence known so early. The inflammatory reaction on the part of the appendix leads to operation while the lesion is still in its incipiency, which is the reason for the good prognosis.

57. **Hastening Recovery After Laparotomy by Having the Patients Leave Bed Early.**—Kümmell presented this appeal at the recent congress of the German Surgical Association with the arguments in favor of allowing the patients to get up the first day in some cases, on the second day in others, and the third day in all cases in which the operative wound is healing aseptically without fever. No inconveniences were observed in any instance.

59. **Postoperative Thrombosis.**—Fraenkel states that eighteen deaths from postoperative embolism of the pulmonary artery occurred in the Vienna General Hospital in 1906. Most of the patients were robust, and in advanced convalescence. He ascribes the thrombosis to metastatic infection from the wound or vicinity of the operation. The chief factor is paralysis of the intestine from the infection and inflammation. This is the source of the disturbances that appear later at remote points, such as parotitis, joint and bone affections and postoperative thrombosis—all conditions which may be regarded as septic metastases. Varicose veins afford a predisposition to thromboembolism. In a number of cases autopsy showed that the embolus in the pulmonary artery came from a fresh coagulum in a varicose vein in the leg. He regards

every case of postoperative thromboembolism as a warning for revision of the entire system for insuring asepsis, as it shows a defective link somewhere in the chain. After the operation every effort must be made to combat any tendency to paralysis of the intestine.

Beiträge zur klinischen Chirurgie, Tübingen.

June, LVIII, No. 2, pp. 289-569.

61 The Galalith Intestinal Button. (Galalith-Darmknopf.) V. Lieblein.
62 *Hernia in Sacrosciatic Foramen. (Beiträge zur Kenntnis und Kasuistik der Hernia ischiadica an der Hand des ersten radikal operierten und geheilten Falles.) E. Köppl.
63 *Relations Between Thymus and Exophthalmic Goiter. (Beziehungen der Thymus zum Morbus Basedow.) Capelle.
64 Backward and Outward Subluxation of the Astragalus with Subluxation of the Cuboid Bone. Roith.
65 Arterial Blood Pressure in Surgical Kidney Affections and Appendicitis. (Verhalten des arteriellen Blutdruckes bei chirurgischen Nierenkrankungen und Appendicitis.) T. Kato and Kotzenberg.
66 *Plastic Operations on Kidney Pelvis and Upper Segment of Ureter for Hydronephrosis. (Plastische Operationen am Nierenbecken und oberen Ureterabschnitt bei den Retentionsgeschwülsten der Niere.) F. Kroiss.

62. **Sciatic Hernia.**—Köppl says that only 23 cases of hernia in the sacrosciatic foramen are on record in the literature for 150 years. He recently encountered such a case and corrected the tendency to hernia by a radical operation, the first time it had been attempted, to his knowledge. The pain from compression of the nerve by the hernia is important for the diagnosis, especially when accompanied by the ordinary signs of hernia. Differentiation is difficult and has been made only in the rarest cases.

63. **Relations Between the Thymus and Exophthalmic Goiter.**—Capelle comments on the remarkable frequency of the coincidence of an abnormally large thymus with severe exophthalmic goiter. He discusses the possibility of being able to diagnose the persisting large thymus during life. This question is of extreme importance for surgical treatment of exophthalmic goiter as the persistence of the thymus immeasurably enhances the risks of the operation. The condition of the heart is the touchstone for operative treatment, and experience has shown that the persisting large thymus is an almost invariable accompaniment of severe heart disturbances in these cases. He states the facts as: "A large Basedow thymus is, so to say, pathognomonic for a weak Basedow heart, incapable of standing the stress of an operation." He reports several instructive cases of this type, the patients standing resection of the thyroid without mishap, but the evening of the same day the heart developed "delirium cordis" and the patients succumbed in a few hours. The operations had been done under ether. Nothing was found at autopsy to explain the fatalities except a hyperplastic thymus. In 60 autopsy records that have been published, unusual size of the thymus was mentioned in 79 per cent. of the cases. Percussion, palpation, Roentgenoscopy and signs of the status lymphaticus may reveal the condition of the thymus. The discovery of enlargement of other glandular organs, the spleen, tonsils and follicular glands of the tongue, suggest the possibility of a persisting large thymus, a condition which may also be suspected when thymus preparations cause an aggravation of the exophthalmic goiter symptoms.

66. **Plastic Operations on Kidney Pelvis and Upper Segment of Ureters.**—Kroiss reviews the operative treatment of hydronephrosis from anomalies of the pelvis or ureter—a total of 102 operations which he describes in detail with 33 illustrations. His attention was attracted to the subject by a case of hydronephrosis of a solitary kidney, at Schloffer's Innsbruck clinic. He has also had occasion to perform a plastic operation in three other cases. The results of operative treatment in all this material have been excellent as a rule.

Berliner klinische Wochenschrift.

June 15, XLV, No. 24, pp. 1121-1164.

67 *What Should Be Taught Regarding Dangers of Infectious Diseases in First Aid Courses? (Was soll der Arzt über die Gefahren der Infektionskrankheiten in den Samariterkursen lehren?) F. Hueppe.
68 *Postoperative Occlusion of Duodenum. (Duodenaler Ileus nach Operationen.) L. Landau.
69 *Treatment of Ileus. W. Braun.
70 *Nature of Leukemia and Its Treatment. (Wesen des leukämischen Krankheitsprozesses und die therapeutische Beeinflussung desselben.) E. Grawitz.
71 Maneuvers for Artificial Respiration. (Manuelle künstliche Atmung Erwachsener.) G. Meyer and A. Loewy.
72 Precipitin Reaction in Syphilis and General Paralysis. (Fornet'sche "Präcipitat"-Reaktion bei Lues und Paralyse.) F. Plaut and W. Heuck.
73 Roentgen and Anatomic Study of Duodenum. (Sonderstellung der Pars horizontalis superior des Duodenums in röntgenologischer und anatomischer Beziehung.) G. Schwarz.
74 Apparatus for Functional Tests and Training of the Heart. (Apparat zur Funktionsprüfung und Trainierung des Herzens.) M. Herz.
75 *The Use of Carbon Dioxid Snow in the Treatment of Nevi and Other Lesions of the Skin. (Kohlensäureschnee zur Behandlung von Hautkrankheiten.) W. A. Pusey.
76 *Examination of Fundus of the Eye by Transillumination of Orbit from Nasopharynx. (Neue Methode der Untersuchung des Augenhintergrundes und des Bulbusinnern.) C. Hertzell.
77 Present Status of Endonasal Surgery. Finder.

June 22, No. 25, pp. 1165-1212.

78 *Subcutaneous Continuous Drainage of Ventricles of Brain in Hydrocephalus. (Subcutane Dauerdrainage der Hirnventrikel beim Hydrocephalus.) F. Krause.
79 Glycosuria Experimentally Induced by Cauterization of Inner Surface of Intestine. (Glykosuria, experimentell hervorgerufen durch Verätzungen und Verschorfungen der Innenfläche des Darmes.) F. Eichler and H. Silbergleit.
80 *Congenital Muscular Rigidity and Dislocation of Hip Joint. (Little'sche Krankheit und Hüftluxation.) G. A. Wollenberg.
81 Torsion of Pedicle of Gall Bladder. (Stieldrehung der Gallenblase.) R. Mühsam.
82 *Secondary "Implanted" Abdominal Cancers. (Implantationscarcinome im Abdomen.) A. Tilp.
83 *Palpation of Normal Pylorus, etc., and Expiratory Gurgling. (Palpation des normalen Pylorus und der normalen grossen Kurvatur, und ein neues akustisches Phänomen, das expiratorische Gurren.) T. Hausmann.
84 *Action of Drugs on the Blood Serum. (Wirkung der Arzneimittel auf das Blutserum.) J. Schwarzmann.
85 *Cure of Chronic Bronchitis by Breathing Exercises. (Heilung der chronischen Bronchitis durch Atmungsgymnastik.) H. E. Knopf.
86 *Under Water Examination and Treatment in Gynecology and Obstetrics. (Subaquale Untersuchung und Behandlung in der Gynäkologie und Geburtshilfe.) O. Tuszkai.

67. **Preventive Medicine in First-Aid Courses.**—Hueppe presented this address at the First International Congress for First Aid, held at Frankfort recently. It is an appeal for the rudiments of the causes and dangers of infectious diseases to be included in the instructions in the system of "Samaritan" or "first-aid" lectures. He preaches constructive hygiene and the importance of educating the public in the idea that cleanliness is more than half of disinfection. "Indeed," he says, "disinfection is only a special and magnified form of cleanliness." He mentions that in the recent smallpox epidemic at Vienna, transmission of contagion by currents of air transporting the desiccated material was abundantly proved. Dried material from the pustule was formerly used in the Orient for variolization by insufflation of the dried substance into the nose. He thinks that enlarging the scope of the first-aid instruction will immensely enhance the usefulness of the present systematic training in first aid now in vogue in Germany and Austria.

68. **Treatment of Postoperative Ileus.**—Landau refers especially to the symptom-complex of sudden collapse and uncontrollable vomiting of almost pure bile, the vomiting never being feculent. In two recent cases the diagnosis of severe peritonitis seemed unmistakable, but turning the patients so that they lay face downward banished all the symptoms at one stroke. The trouble is an arteriomesenteric occlusion of the duodenum. The entire root of the mesentery, from which the heavy small intestine is hanging, has become strangulated. The kinking of the duodenum may be followed by dilatation, paralysis and ptosis of the stomach, and the heart action is sure to suffer. By assuming the prone position the trouble is mechanically corrected, and all disturbances subside. Ignorance of the benefits of the change of position to the ventral decubitus may have fatal results, the patient apparently succumbing to peritonitis and heart failure. He discusses the mechanism of this "duodenum ileus" and the cooperation of various factors, remarking that it may be observed after trauma or may even occur spontaneously. He thinks it wiser not to purge too energetically before a laparotomy and to allow nourishment early, to ward off the possibility of this postoperative duodenal ileus.

69. **Treatment of Ileus.**—Braun discusses the treatment of mechanical ileus, its indications and its results. His views are based on an experience of 69 cases. A delay of from 12 to 24 hours before intervention seals the fate of the patient in many cases of volvulus of the intestine, strangulation and

invagination. In one child, the invagination became almost irreducible in 6 hours; in another case gangrene developed in 24 hours after occlusion from constriction by Meckel's diverticulum. In occlusion from adhesions and stoppage, the interval before the catastrophe is generally much longer, but even here fatal collapse is liable to occur at any moment. The indications are therefore for rapid as well as judicious measures. In 6 cases the ileus was cured by injections; in 33 cases laparotomy was required, and in 30 palliative measures, puncture or enteroanastomosis. He regards puncture of the intestine through the intact abdominal walls as too dangerous, but advocates for appropriate cases a Witzel slanting fistula. This allows the contents of the intestine to be evacuated with a small incision in the intestine and no escape of the contents around the small flexible cannula he uses for the purpose.

70. **Leukemia and Its Treatment.**—Grawitz has had 41 cases of leukemia in his charge in the last three years, and this experience has shown that the different types of blood formation in this disease respond differently to treatment. In 26 cases with mixed-cell findings in the blood, 12 of the patients were in the earliest stages and 10 of these were clinically cured by Roentgen treatment, except that 3 had transient recurrence after a year or two of health. Two of this group were improved, but recurrence was soon observed and the ultimate outcome is unknown. In 14 cases in which the leukemic process was of several years' standing, one patient has been cured for two years, one died uninfluenced; the others showed more or less improvement but no permanently favorable results. Some have died since, and the fate of the others is unknown. In the 15 cases of lymphoid findings, only one patient can be regarded as cured. One has died since of an intercurrent affection, 2 were improved, but have since died of recurrence. The others showed slight or no improvement. By thus classifying the various types, the effect of Roentgen treatment can be better estimated. Complete restitution need not be expected in cases of deep-rooted defective blood production, but earlier diagnosis and better Roentgen technic will certainly improve the prospects in leukemic conditions.

75. This article was published in THE JOURNAL, Oct. 19, 1907, page 1354.

76. **Illumination of the Fundus of Eye from Nasopharynx.**—Hertzell introduces his ophthalmodiaphanoscope into the rear of the mouth. The light illuminates the orbit from the rear and shows a number of instructive features in the eyeball and behind it in the orbit which have hitherto escaped the usual ophthalmoscope.

78. **Subcutaneous Continuous Drainage of the Ventricles in Hydrocephalus.**—Krause has derived great benefit in a number of cases from the use of a light silver tube introduced into the ventricle. The outer end is slit up on each side and these tongues are turned back at right angles on the outer surface of the skull. This prevents the tube from slipping in too deep, while it is held in place by suturing the periosteum over the turned back ends of the tube, leaving the lumen open. The skin flap is then sutured in place. The tube thus conveys the fluid from the ventricle into the subcutaneous tissue, and it is left in place for months. He gives illustrated descriptions of several cases. In the one case of acute hydrocephalus the child died, but other factors were responsible for the fatality. In one case he combined the intubation with a flap valve with good results. In one case puncture allowed removal of a tumor in the cerebellum. The patient developed asphyxia several times during the operation, but relief was obtained each time by puncture, allowing escape of fluid under high pressure. In a case of tumor in the cerebellar-pontine angle, puncture of the subdural space materially reduced the dangerous symptoms of pressure on the brain. He commends this method of transient and permanent drainage, although his experience with it has not been conclusive. He is convinced that it is rational and may reduce the dangers of many operations on the brain.

80. **Congenital Muscular Rigidity and Dislocation of the Hip Joint.**—Wollenberg has examined 10 cases of Little's disease with the Roentgen rays. In 6 the hip joints were apparently normal, but in the others there was complete luxation in 3, bilateral in 1, and subluxation in the fourth case. He has collected from the literature 17 cases of Little's disease complicated with dislocation of the hip joint. Spasm of the muscles can be counteracted by myotomy of the abductor and flexor muscles of the hip joint, which in combination with tenotomies permits the use of the limb, and is the best prophylaxis of dislocation of the hip. Fixation of the leg in abduction in a plaster cast and splint reduces the possibility of the head of the femur slipping out of place. He advises correction of the dislocation believing that appropriate myotomies and tenotomies will aid in preventing recurrence. His cases confirm the possibility of a mechanical origin for dislocation of the hip joint, both of the congenital and acquired types.

82. **Implantation Cancer in the Abdomen.**—Tilp reports a case in which the genital organs showed extensive inoculation metastases besides numerous hematogenic and lymphogenic metastases from a primary carcinoma in the gall bladder. He knows of only two similar cases on record in which secondary cancer of the uterus was the result of implantation. A secondary neoplasm of the ovary, uterus or intestine, of this kind, might deceptively simulate a primary growth.

83. **Palpation of Normal Stomach and Gurgling During Expiration.**—Hausmann has perfected a method of deep palpation which reveals the viscera distinctly. He aims to push the organ back against the posterior abdominal wall and then determine its outlines. This is done during expiration after a very deep inspiration. The fingers are drawn downward, the procedure being facilitated by the rising of the stomach and colon during expiration. He has found that it is thus possible to palpate the normal pylorus in 18 per cent. of the persons examined. As the fingers pass over the fold of the greater curvature it feels like a step, over which the finger is drawn. As this is done the fingers separate the stomach into two parts, and any fluid in the stomach noisily regurgitates from one part into the other. He regards this "expiratory gurgling" as an ideal method for determining the position of the stomach, especially the level of the lower margin. As a rule, this margin is 5 or 6 cm. above the umbilicus, but he has found a great difference in the location of the umbilicus in different persons, ranging from 2 to 10 cm. above the line connecting the spines of the ilium. He cites some examples to show the important information that may be learned by his technic, especially for exclusion of the stomach as the site of a palpable tumor.

84. **Action of Drugs on Blood Serum.**—Schwarzmann states that the agglutinating properties of the blood serum increased to a marked extent in rabbits and dogs taking sodium iodid. He thinks that these experiences open a new line for research in regard to the action of drugs.

85. **Cure of Chronic Bronchitis and Asthma by Breathing Exercises.**—Knopf has been successful in curing chronic bronchitis by systematic courses of deep breathing. The exercises are done with the trunk bare, before a large mirror, inspiring through the nose and expiring through the mouth. Some persons breathe too superficially or they contract the abdominal muscles during inspiration. This latter bad habit can be one of the factors in bronchitis and asthma, and it must be combated and the patients taught to breath properly and not to cough except to expel the secretions. These exercises in deep breathing improve the general health to a remarkable extent and cure chronic constipation, and regulate the circulation until the patient says that he "feels like a new man." Knopf affirms that systematically practiced deeper breathing is not only the most certain expectorant, but also the only one that is entirely harmless. The only drawback is a slight dizziness sometimes noticed at first, evidently a sign of anemia of the brain, but it occurs only at first. No other system except that of locomotion is so much under the control of the will as the respiratory system, and he believes that respiratory therapy promises good results in many morbid conditions in heart and blood vessels, skin and nervous system, and in metabolic disturbances.

86. **Examination and Treatment Under Water in Gynecology and Obstetrics.**—Tuszkai for fourteen years has been making a practice of examining the abdomen with the patient reclining in a bathtub. The abdominal walls relax and allow palpation of otherwise inaccessible organs. He has thus been

able to diagnose a pregnancy in the sixth week and to follow the growth of the skull of the fetus and thus to determine the best moment for intervention with contracted pelvis. This extreme facility afforded by the water is more than can be explained by mere relaxation of the muscles or soothing of the nerves; physical factors must cooperate in the effect. In one case an incarcerated tumor in the small pelvis, compressing the ureters, could be reduced under water, thus allowing the patient to be prepared for its proper removal. Even general anesthesia does not permit such exact examination as the water bath, while the latter has the advantage that the tender spots can be accurately located. He commends this "subaqual technic" as a great improvement which deserves wide application. Not only water but other fluids increase the possibilities of palpation. Interesting findings were obtained with rabbits and dogs placed in fluid tallow, plaster or wax.

Correspondenz-Blatt für Schweizer Aerzte, Basle.

June 1, XXXVIII, No. 11, pp. 345-376.

87 Transplantation of Muscles. (Muskeltransplantationen.) Brandenberg.

June 15, No. 12, pp. 377-408.

88 Successful Removal of Epicerebral Sarcoma in Region of Left Sensory Motor Convolutions. E. Tschudy and O. Veraguth. Commenced in No. 11.

Deutsche medizinische Wochenschrift, Berlin.

June 18, XXXIV, No. 25, pp. 1081-1128.

89 Morbid Depression and Its Treatment. (Depressionszustände.) R. Sommer.
90 Existence of Rudimentary or Abortive Forms of Muscular Dystrophy and Their Treatment. (Gibt es Formes frustes oder rudimentäre Formen der muskulären Dystrophie (Erb), und ist deren Heilung möglich?) A. Marina.
91 *Removal of Gravid Tube by Vaginal Route. A. Dührssen.
92 Rat-Bite Disease. (Aetiologie der Rattenbisskrankheit.) M. Ogata.
93 Determination of Suprarenal Products in Blood and Urine. (Nachweis von Nebennierenprodukten im Blut und Harn.) N. Waterman and R. J. Boddaert.

91. **Vaginal Extirpation of the Gravid Tube.**—Dührssen has removed the pregnant tube by the way of the vagina in 93 cases, with one fatality. Another patient died from peritonitis following a fall after leaving the hospital. This experience includes thirteen years; he found this technic possible in about two-thirds of the cases. He would not advise it unless the operator is especially skilful in vaginal technic and unless he can count on two skilled assistants. Under these conditions, Dührssen commends anterior colpoceliotomy in a tubal pregnancy of from one to three months in case the tube is still intact, or in case of hemorrhage if the condition of the patient allows proper preparation, or with tubal mole with or without a hematoma. In case of older and larger hematocele he advises opening into it from the posterior vaginal vault or by a laparotomy.

Deutsche Zeitschrift für Chirurgie, Leipsic.

May, XCIII, No. 3, pp. 237-324.

94 *Ivory or Rubber Substitute for the Lower Jaw After Exarticulation. (Kieferersatz bei Exartikulation des Unterkiefers.) F. König.
95 Cutaneous Tuberculin Reaction in Surgical Affections. (Kutandiagnose der Tuberkulose bei chirurgischen Leiden.) J. Malis.
96 *Successful Removal of Emboli from Pulmonary Artery. (Fall von Embolie der Lungenarterie nach der Methode von Trendelenburg operiert.) R. Sievers.
97 Appendicitis and Pregnancy. F. Weber.
98 Concrements Forming on Threads After Gallstone Operations. (Fadenrezidiv nach Gallensteinoperationen.) H. Flörcken.
99 Apparatus for Compressing Pelvis in Trendelenburg's Operation for Exstrophy of Bladder. (Beckenkompression bei Operation der Blasenektopie.) Wilms.

94. **Prosthesis After Exarticulation of Lower Jaw.**—König has inserted a prosthetic appliance in four cases after exarticulation of the lower jaw. In his latest case the patient was a woman of 68, and a piece of ivory was inserted to take the place of part of the jaw removed on account of a tumor of the ascending branch of the jaw in a toothless mouth. The results were extremely satisfactory. The ivory becomes arroded enough to allow a little ingrowth of bone tissue which anchors it firmly.

96. **Extraction of Embolus from Pulmonary Artery.**—Trendelenburg has proposed during the last few months active intervention in cases of otherwise fatal pulmonary embolism. He has shown that it is feasible on animals, but in the one clinical case in which he applied it the patient succumbed in the course of the operation. Sievers has been more successful, and here relates the particulars of a case in which he was able to remove the emboli and terminate the operation, allowing a survival of the previously pulseless patient for fifteen hours. The symptoms indicated nearly total obstruction of both main branches of the pulmonary artery. The emboli removed were 15 and 21 cm. long by 7 to 12 mm. in diameter.

Medizinische Klinik, Berlin.

June 14, IV, No. 24, pp. 895-932.

100 *What Operations Can Be Done Without Requiring After-Care in Hospital? (Das Gebiet der ambulatorischen Operationen.) J. Sternberg.
101 *Venesection and Circulatory Disturbances. (Aderlass und Kreislaufstörungen.) Hahn.
102 *Poisoning from External Application of Resorcin. (Resorzinvergiftung bei äusserer Anwendung.) H. Nothen.
103 Traumatic Intussusception of Urethra. H. Hans.
104 Traumatic Prolapse of Rectum. (Eingeweideprolaps infolge erhöhten Innendruckes.) F. Schilling.
105 Microsporon Epidemic at Berlin. B. Chajes.
106 High-Frequency Apparatus for Keating-Hart Technic. F. Dessauer.
107 Kant's Relations with Medicine and Pharmacy. (Immanuel Kant als Arzt und Apotheker.) A. Kohut.
108 Quack Remedies Made in Thuringia. (Königseer Olitäten.) C. Reissig. Commenced in No. 22.

100. **Operations on Out-Patients.**—Sternberg thinks that the number of operations after which the patient can be allowed to go home is much larger than generally realized. As children can easily be carried, almost all operations on them permit this, and all operations that do not interfere with the patient's walking. He has even performed thus amputation of the breast, with removal of the glands in the axilla, thyroidectomy and operations on the bones for caries, or on the soft parts for fungus, allowing the patient to go home at once. He begins to prepare the field for the operation several days before by applying a large dressing wet with a 1 per cent. solution of aluminum acetate and tartrate with a little glacial acetic acid, the whole being covered with oiled silk. This does not act so vigorously as aluminum acetate alone. This dressing is renewed daily, and the day before the operation the field is thoroughly cleansed with benzine, hot water and soap, followed by a large compress with glycerin and tincture of soap, for the last twenty-four hours. The operation is done during the first whiffs of ether, the so-called *Aetherrausch*. Special attention must be paid to ligation of all the visible vessels, both arteries and veins. After the operation he applies a dressing to the entire half of the head in an operation on the face with a few turns of starch-paste dressing outside, and after operations elsewhere in proportion. These large extensive dressings, made stiff outside, not only protect the wound against infection from neglect or curiosity, but reduce the pain by limiting the movements of the parts.

101. **Venesection in Heart Disease.**—Hahn relates a number of cases to show the excellent effects of venesection when the circulation in the lungs is interfered with. The circulation in the lungs provides a regulating reservoir for the blood, and the effect of venesection is felt here first and most intensely. Especially in arteriosclerosis, permanent benefit is derived from venesection, possibly from reduction of the viscosity of the blood. Experiments on himself showed that venesection induced a feeling of agreeable lassitude, an outbreak of sweat, and somnolency. Among the experiences related was the arrest of incipient edema of the lungs in severe heart disease in a hard drinker and the relief of distress in a patient with emphysema of the lungs and secondary weakness of the right ventricle.

102. **Intoxication from Resorcin.**—Nothen has observed two cases in the last year in which external application of a resorcin salve caused severe intoxication. One patient was a healthy young man and the symptoms simulated threatening uremic coma at first. He had used in one day about 30 gm. of the resorcin for seborrheic eczema on back and limbs. The salve was removed with ether; heat was applied to the extremities, camphor injected and venesection done, and the patient regained consciousness four hours after the inunction and recovered. The other patient was an infant with pemphigus, 11 days old. He was found dead in less than twenty hours after the pemphigus patches on head, breast and arms had been dressed with a 3 per cent. resorcin-vaselin salve.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin.

June, XXVII, No. 6, pp. 681-789.

109 *Dysmenorrhea as Result of Traction on Peritoneum. (Dysmenorrhoe durch Bauchfellzerrung.) H. Sellheim.
110 Prolapse of Normally Located Placenta. (Vorfall der Nachgeburt bei normalem Sitz.) R. Stern.
111 Embryonal Ovarian Tumors. (Embryoiden Geschwülsten des Eierstocks.) A. Redlich.
112 Primary Abdominal Pregnancy. J. Lovrich.
113 Incipient Chorioepithelioma with Metastasis in Vagina. M. Brenner. Commenced in No. 5.

109. **Dysmenorrhea the Result of Traction on Peritoneum.**—Sellheim ascribes the pain to the changes in the size of the uterus during menstruation, pulling on the parietal peritoneum. This may occur by undue shortness of the ligaments or by adhesions. The loosening of the ligaments and adhesions during the course of a pregnancy explains the cure of dysmenorrhea in many cases after childbirth. The dysmenorrhea is sometimes cured also by courses of treatment which stretch or loosen the ligaments and adhesions or relieve constipation. In all cases the combination of the dysmenorrhea with sensitive, short, thick and tightly stretched ligaments, should always suggest the necessity for reducing the traction on the peritoneum by measures to stretch or alter the circulation in the ligaments. An effectual measure is an electromagnet applied to the abdomen which rhythmically attracts and releases iron rings, balls, etc., in the vagina. He thinks this is better than digital massage of the genitals in such women as they are liable to be psychically somewhat unstably balanced. In one case he severed the abnormally taut ligaments, but after a transient improvement the result was bad; the disturbances recurred, severer than before. Either the patient had an unsuspected tendency to hysteria or neurasthenia or the severed ligaments must have soon grown together again.

Virchows Archiv, Berlin.

June, CXCII, No. 3, pp. 384-564.

114 *Experimental Tuberculosis of Kidney with Ligated Ureter. (Tuberkulose und Blutströmung.) J. Meinertz. Commenced in No. 3.
115 Implantation of Embryonal Tissue. (Implantation embryonaler Gewebe.) W. Bogoljuboff and P. Owschinnikow.
116 Suprarenals: Secretion Granules—Edema—Weight. (Nebennieren.) O. Scheel.
117 Chemical Study of Melanoma. C. Neuberg.
118 Origin of Hematoma on Heart Valves in New-born Infants. (Entstehung der Herzklappenhämatome bei Neugeborenen.) H. Meinhardt.
119 Extensive Production of Hyalin in the Arteries. (Ausgedehnte Hyalinbildung in Arterien.) E. Ritter.
120 Embryologic Study of Rare Malformation. (Eine seltene menschliche Missbildung.) E. Falk.

114. **Tuberculosis and the Blood Current.**—Meinertz describes research on experimental tuberculosis of the kidney as it developed with or without ligation of the ureter. The modification in the circulation through the kidney by ligation of the ureter caused certain distinct modifications in the development of the tuberculosis in these organs. The results harmonized with those observed in diffuse miliary tuberculosis, confirming the predilection of the process for organs with a more sluggish circulation.

Wiener klinische Wochenschrift.

June 18, XXI, No. 25, pp. 893-930.

121 *Protection of Cattle Against Tuberculosis. (Tuberkuloseschutzimpfung beim Rinde.) J. F. Heymans.
122 Determination of Biliary Pigment and Its Clinical Importance. (Nachweis von Gallenfarbstoff und dessen klinische Bedeutung.) F. Obermayer and H. Popper.
123 Pathogenesis of Heberden's Nodules. (Heberdensche Knoten.) F. Pineles.
124 Changes in Blood in Myxedema. (Veränderung des Blutbildes bei Myxödema.) J. Bence and K. Engel.
125 Composition of Blood in Relapsing Fever. (Blutzusammensetzung bei der Febris recurrens.) G. Kieseritsky.
126 "Dust" in Spermatic Fluid. (Spermakonien.) E. Wiener.
127 The Seashore in Tuberculosis of Upper Air Passages. (Einfluss der deutschen Meere auf die Tuberkulose der oberen Luftwege.) A. Hennig.
128 Behavior of Human Skin in response to Various Bacterial Poisons. (Ueber das Verhalten der menschlichen Haut gegen verschiedene bakterielle Giftstoffe.) C. v. Pirquet.

121. **Sac Method of Immunization of Cattle Against Tuberculosis.**—Heymans describes a method which has been applied to 4,000 cattle since 1905, and which he believes enhances the resisting powers of the animal. He calls it the "sac method." A sac made from part of a reed is filled with 1 mg. of living tubercle bacilli, diluted with powder; the mouth of the sac is tied and collodionized, and the sac is then introduced under the skin of the animal. Tests have shown that a sac like this filled with tuberculin and placed in a vessel of physiologic salt solution allows diffusion of the tuberculin through the intact membrane of the sac. A tuberculous cow soon shows the typical reaction when a sac containing 0.5 c.c. of raw tuberculin is inserted under the skin. When the sac contains live bacilli they thrive so long as they obtain the necessary nutrient substances by diffusion. Tests on guinea-pigs have shown that the bacilli remain alive and secrete their specific substances in the organism of the inoculated animal so long as the substances which diffuse into the sac are not completely bactericidal, that is, as long as the animal's organism has not acquired adequate immunity. The sac heals in the tissues, forming a nodule resembling a tubercle. After six or eight months the nodule atrophies, the bacilli die, and if the contents of the tubercle are injected into a guinea-pig after 12 or 18 months no tuberculous infection follows. Experience shows that an animal bearing one of these sacs seems to be protected against experimental and spontaneous tuberculous infection to an extent hitherto unattained. He discusses the mechanism and cites his six previous announcements on the subject since 1904.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart.

LXII, No. 1, pp. 1-176.

129 Incontinence of Urine from Female Hypospadias and Its Treatment. (Incontinentia urinæ bei Spaltbildung der weiblichen Urethra.) R. Teller.
130 Threatening Internal Hemorrhage from an Ovarian Perithelioma. Laparotomy. Recovery. L. Goth.
131 Melanotic Cancers of Vulva. (Bösartige pigmentierte Geschwülste der Vulva.) H. Hinselmann.
132 Endometritis, and Importance of Plasma Cells in Inflammation. E. Weishaupt.
133 *Treatment of Eclampsia. K. Möhlmann.
134 Lower Segment of Uterus. H. F. Barbour.
135 Vater-Pacinian Corpuscles in Fallopian Tube. E. Ries.
136 Study of Isolated Surviving Dog Kidneys Flushed with Placenta Juice. (Beobachtungen an mit Placentasaft durchströmten Hundenieren.) P. Mathes.
137 *Attempt to Determine the Eclampsia Toxin by Experiment. (Versuch das Eklampsiegift auf experimentellem Wege nachzuweisen.) V. Albeck and J. E. Lohse.

133. **Treatment of Eclampsia.**—Möhlmann reviews the experiences at Olshausen's clinic at Berlin with 104 cases of eclampsia, 1906-7. The mortality was 15.4 per cent. for the mothers and for the children 24.04 per cent. The convulsions did not recur after delivery in 64.4 per cent. In 21 cases expectant treatment was followed by spontaneous recovery without the necessity for hastening delivery. The practitioner should weigh well the conditions in each case to decide whether the eclampsia itself or the supposedly indicated immediate artificial delivery is fraught with most danger for the patient.

137. **Eclampsia Toxin in Amniotic Fluid.**—Albeck and Lohse relate experiments with animals injected with amniotic fluid from eclamptic and non-eclamptic puerperæ. Changes were found in the liver in the guinea-pigs injected with the eclamptic fluid resembling in every respect those observed in the livers of women succumbing to eclampsia. Nothing of the kind was observed in the organs of guinea-pigs injected with amniotic fluid from non-eclamptic women.

Zentralblatt für Chirurgie, Leipsic.

June 20, XXXV, No. 25, pp. 753-776.

138 *Intestinal Anastomosis of Mucosæ with Rubber Sutures. (Darmanastomose mittels Gumminaht der Schleimhäute.) F. Kuhn.
139 Temporary Turning Back of Both Jaws. (Temporäre Aufklappung beider Oberkiefer.) M. Borchardt.

June 27, No. 26, pp. 777-808.

140 *Antiferment Treatment of Suppurative Processes Without Incision. (Antifermentbehandlung eitriger Prozesse ohne Inzision.) A. Peiser.
141 Appliances for Positive Lung Inflation by Peroral Intubation. (Lungenüberdruck mittels peroraler Intubation und kontinuierlicher Luftpuffung in dem Intubationsrohr.) F. Kuhn.
142 Resection of Common Bile Duct. A. de Graeuwe.

138. **Intestinal Anastomosis with Rubber Sutures.**—Kuhn gives an illustrated description of a method of exposing and suturing the mucous lining of the stumps of the intestine with rubber, using ordinary rubber bands for the suture material. By this means the lips of the stumps are coaptated with great pressure from the elastic rubber, while the rubber cuts through in time. Among the advantages claimed for the method are the possibility of absolute asepsis, no escape of the contents of the intestine and the easy, rapid technic.

140. **Antiferment Treatment of Suppurating Processes Without Incision.**—Peiser relates further experiences with his method of treating suppurating processes by supplying from without an antiferment to counteract the ferment naturally in the suppurating focus. It was described in THE JOURNAL, June 6, 1908, page 1951. He has found that it is possible to accomplish the desired effect by aspiration of the pus with a stout syringe and immediate injection of the antiferment serum. It is thus possible to avoid a disfiguring incision. He is now giving this method of treatment an extensive trial in cancer cases, generally using the effusion from the pleura or abdominal cavity, filtered and tested for its antiferment properties by E. Müller's plate method.

Zentralblatt für Gynäkologie, Leipsic.

June 20, XXXII, No. 25, pp. 817-840.

143 Extraperitoneal Cesarean Section. (Extraperitonealer Kaiserschnitt.) A. Czyzewicz.
144 Hernia of Gravid Uterus After Conservative Cesarean Section. (Der kreissende Uterus als Bruchinhalt bei Bauchbruch nach konservativem Kaiserschnitt. Kaiserschnitt nach Porro.) W. Schmidt.
145 *Pathogenesis of Eclampsia. A. Dienst.

June 27, No. 26, pp. 841-872.

146 Suggestion for Facilitating Removal of Laminaria Tents from Cervical Canal. (Vorschlag zur Erleichterung der Entfernung von Quellstiften aus dem Cervicalkanale.) L. Knapp.
147 Two Cases of Decapsulation of Kidneys in Eclampsia. (Nierendekapsulation bei Eklampsie.) F. Kleinertz.
148 Instrumental Abortion. (Anwendung der Abortzange.) F. Thomä.

145. **Pathogenesis of Eclampsia.**—Dienst explains his grounds for the assumption that the symptoms of eclampsia are the result of an overaccumulation of fibrin in the blood. The filaments of fibrin cause disturbances in the circulation, thrombosis and consecutive necrosis of the parenchyma, especially of the liver. The resulting insufficiency of the liver leads to imperfect neutralization of the toxins generated in the metabolism, thus inaugurating a vicious circle. Retention of salts is a further indispensable factor in the development of eclampsia, as the excess of fibrin alone is not sufficient to induce it. Pregnancy nephritis causes retention of salt and thus proves an indirect factor. The leucocyte count suggests that dropsy without albuminuria, "pregnancy kidney," and eclampsia are all links in the same chain.

Gazzetta degli Ospedali e delle Cliniche, Milan.

June 14, XXIX, No. 71, pp. 745-760.

149 *Are Consumptive Camps and Hospitals a Menace to the Neighborhood? A. Randi.
150 *Connection Between the Thymus and Asthma. (Degenerazione lacunare del timo ed asma di Richa-Kopp.) F. Pedrazzini.

149. **Are Consumptive Hospitals and Camps a Menace to the Vicinity?**—Randi declares that hundreds of consumptives under proper discipline are not so dangerous for the community as a single tuberculous person not taking due precautions to render his expectoration harmless.

150. **The Thymus and Asthma.**—Pedrazzini reports three cases of sudden death in young children, the so-called "thymus deaths." He reviews the literature and shows that an unusually large thymus or one with merely a part enlarged or abnormally hard may press on the organs or nerves in such a way that any accidental congestion, abnormal pushing up of the diaphragm from distention of the abdomen or irritation of the vagus, as from difficult gastric digestion, helminthiasis or intestinal disturbances, may upset the balance and induce severe suffocation or sudden death. The thymus need not be very large for this to occur. A spasmodic cough may also be caused by compression from the enlarged thymus or from an indurated patch in the thymus, as he shows by several examples. The asthma described by Richa and Kopp may also be the work of the enlarged thymus. Removal of the thymus has been done successfully, but Pedrazzini prefers chondrotomy of the first costal cartilages, close to the sternum, as affording relief from compression while the simplicity of the operation commends this technic. It usually has to be done as an emergency intervention.

Policlinico, Rome.

June, XV, Medical Section, No. 6, pp. 241-288.

151 Viscosity of Putrefying Blood. (Ricerche viscosimetriche sul sangue in putrefazione.) C. Ferrai.
152 *Toxicity of Urine and Stools and Intestinal Putrefaction in Infants Fed on Foods Rich in Albumin. (Tossicita urinaria e fecale e putrefazione intestinale in bambini nutriti con alimenti ricchi di albumina.) A. Longo.
153 Deviation of Complement in Syphilitic Infection and in Parasyphilitic Affections. F. Costantini. Commenced in No. 5.
154 Blood Formula in Malta Fever. (Formula ematologica nella febbre di Malta.) A. Tomaselli.

152. **Toxicity of the Urine and Stools in Children on an Albuminous Diet.**—The metabolic findings in the cases reported show that the toxicity was least on a vegetable diet, increased slightly on milk, still more with meat, but was highest with eggs. Intestinal putrefaction was least pronounced with milk, more with vegetables, still more with meat, and highest of all with eggs.

Nordiskt Medicinskt Arkiv, Stockholm.

April, XL, Surgical Section, Nos. 3-4.

155 *Value of "Combined Method" in Treatment of Rectal Carcinoma. (Wert der "kombinierten Methode" bei der Behandlung des Rektumkarzinoms.) J. Berg.
156 Surgical and Anatomic Study of Exophthalmic Goiter. (Morbus Basedowii.) J. Landström.
157 Roentgen Diagnosis and Treatment of Bladder Stones. (Bedeutung der Röntgenographie für die Diagnose und Behandlung der Blasensteine.) J. Berg.

155. **Treatment of Cancer of Rectum.**—Berg has performed 156 operations for cancer of the rectum, on 93 men and 57 women, since 1890. The radical operation was done in 108 cases, with a mortality of 12.9 per cent. The comparative harmlessness of extirpation from below is demonstrated anew by his experience, also the great benefit liable to be derived from colostomy and the lack of annoyance from the new anus. The patients soon learn to manage it excellently. One of his patients with inoperable rectal cancer lived in good condition for nearly five years with his new artificial anus. Autopsy showed the entire pelvis filled with a single cancer mass. The "combined method" allows extirpation of cancers which otherwise would be deemed inoperable. He declares that it deserves wider application than has been the case hitherto, not merely as an operation of last resort, but early for high cancers of the rectum, for which it presents a number of advantages. Patients should always be warned of the possibly eventual necessity for colostomy in all operations of the kind. As this procedure has proved so satisfactory, it is not wise to enlarge the field of the radical operation too far.

Books Received

LEHRBUCH KLINISCHER UNTERSUCHUNGSMETHODEN FÜR STUDIERENDE UND AERZTE. By Theodor Brugsch, Assistent der II. mediz. Universitäts-Klinik, in Berlin, and Alfred Schittenhelm, a. o. Professor der inneren Medizin, in Erlangen. Part 1. 320 pages, 351 illustrations. Parts 2 and 3, 620 pages, 350 illustrations. Paper. Berlin: Urban & Schwarzenberg, 1908.

SURGERY. By John Allen Wyeth, M.D., LL.D. (University of Alabama), President of the New York Academy of Medicine. Cloth. Pp. 816, with illustrations. Price, $7.00. New York: Marion-Sims Wyeth & Co., 1908.

THE PATHOLOGY OF THE EYE. By J. Herbert Parsons, B.S., D.Sc. (Lond.), F.R.C.S. (Eng.), Assistant Surgeon, Royal London (Moorfields) Ophthalmic Hospital. Vol. IV, General Pathology. Part II. Cloth. Illustrated. Price, $3.50. New York: G. P. Putnam's Sons, 1908.

INDEX-CATALOGUE OF MEDICAL AND VETERINARY ZOOLOGY: Hygienic Laboratory. Bulletin No. 37. By Ch. Wardell Stiles, and Albert Hassall. Paper. Pp. 401. Washington: Government Printing Office, 1908.

CHRISTMAS VS. FOURTH OF JULY. By Asenath Carver Coolidge, Author of "The Independence Day Horror at Killsbury," etc. Paper. Pp. 39. Price, 25c. Watertown, N. Y.: Hungerford-Holbrook Co.

BORDERLAND STUDIES. By George M. Gould, M.D., Formerly Editor of the Medical News. Cloth. Pp. 311, with illustrations. Price, $1.25. Philadelphia: P. Blakiston's Son & Co., 1908.

GOLDEN RULES OF DIETETICS. By A. L. Benedict, A.M., M.D., Buffalo. Author of Practical Dietetics. Cloth. Pp. 407. Price, $3.00. St. Louis: C. V. Mosby, 1908.

QUAIN'S ANATOMY. Vol. I. Embryology. By T. H. Bryce. Cloth. Pp. 275, with illustrations. Eleventh Edition. Price, $3.00. New York: Longmans, Green, & Co., 1908.

BELASTUNGSLAGERUNG. By Ludwig Pincus, Frauenarzt in Danzig. Paper. Pp. 152, with illustrations. Price, $1.00. Wiesbaden: Verlag Von J. F. Bergmann, 1905.

TRANSACTIONS of the American Association of Genito-Urinary Surgeons. Vol. II. Paper. Pp. 413, with illustrations. New York: The Grafton Press.

ST. FRANCIS HOSPITAL, Hartford, Conn. For the Year 1907. Paper. Pp. 63. Hartford: Transcript Job Print, 1908.

ANNUAL STATEMENT of the Directors of the Poor of Blair Co., Pa. For the Year 1907. Paper. Pp. 23.